UNITED STATES DEPARTMENT OF THE INTERIOR

FINAL ENVIRONMENTAL STATEMENT

S SALE NO. 48 Volume 5 of 5

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OCS
No. 48
FES
1979
V.5

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Library
Denver Service Center

Proposed
1979 OUTER CONTINENTAL SHELF
OIL AND GAS LEASE SALE
OFFSHORE SOUTHERN CALIFORNIA

Prepared by the
Bureau of Land Management
1979

TD
195
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C346
1979
v.5

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE

PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA OFFSHORE AREA

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers
5 0 5 10 Nautical Miles
WATER DEPTH IN METERS

LEASE STATUS AND PIPELINE TRANSPORTATION
VISUAL NO I

- EXISTING FEDERAL LEASES
- PROPOSED TRACTS FOR LEASING
- STATE SANCTUARY
- SEALANES
- ONSHORE OIL SEPARATION & TREATMENT FACILITY
- OIL TERMINAL
- ONSHORE OIL PIPELINE
- PROPOSED CRUDE OIL TERMINAL
- PROPOSED OIL PIPELINE
- ONSHORE GAS SEPARATION & TREATMENT FACILITY
- GAS TERMINAL
- ONSHORE GAS PIPELINE
- PROPOSED GAS PIPELINE
- ONSHORE OIL & GAS SEPARATION & TREATMENT FACILITY
- PRODUCT TERMINAL
- ONSHORE PRODUCT PIPELINE
- OFFSHORE MARINE TERMINAL
- PROPOSED SUBMERGED PIPELINE
- PROPOSED LNG TERMINAL
- FIXED PLATFORM
- ARTIFICIAL ISLAND
- SUBMERGED PIPELINE
- WELL
- REFINERY
- EXPLORATORY DRILLING WELL
- SUSPENDED EXPLORATORY DRILLING WELL
- ABANDONED EXPLORATORY DRILLING WELL
- PROPOSED OFFSHORE LNG TERMINAL

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Denver Service Center

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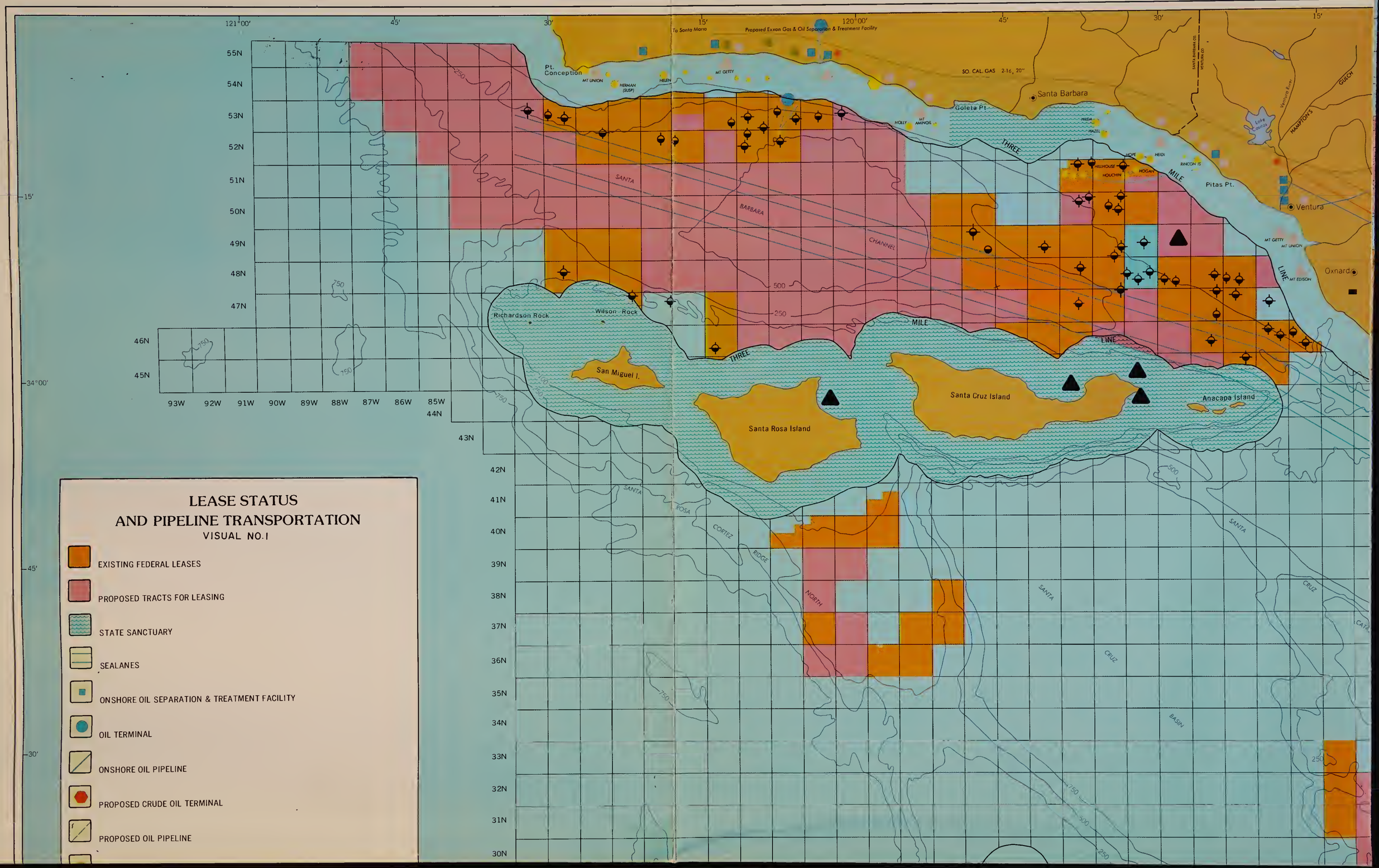
MEXICO AND UNITED STATES BOUNDARY LINE WAS NOT BEEN DETERMINED BY THE ATT


LEASE STATUS
AND PIPELINE TRANSPORTATION
VISUAL NO.1
EXISTING FEDERAL LEASES
PROPOSED TRACTS FOR LEASING
STATE SANCTUARY
SEALANES
ONSHORE OIL SEPARATION & TREATMENT FACILITY
OIL TERMINAL
ONSHORE OIL PIPELINE
PROPOSED CRUDE OIL TERMINAL
PROPOSED OIL PIPELINE
Pt. Conception
MT UNION
HERMAN (SUSP)
HELEN
MT GETTY
To Santa Maria
Proposed Exxon Gas & Oil Separation & Treatment Facility
SO. CAL. GAS 2-16, 20"
Santa Barbara
Goleta Pt.
HOLLY
MT AMINOIL
HIDA
HAZEL
HOPE
HEIDI
RINCON IS
HILLHOUSE
HOUCHIN
HOGAN
Pitas Pt.
Ventura
Oxnard
MT EDISON
Lake Casitas
Ventura River
HAMPTON S
GULCH
SANTA BARBARA CO
VENTURA CO
SANTA BARBARA CHANNEL
THREE MILE LINE
Richardson Rock
Wilson Rock
San Miguel I.
Santa Rosa Island
Santa Cruz Island
Anacapa Island
SANTA ROSA CORTEZ RIDGE
NORTH
SANTA CRUZ BASIN
121°00'
120°00'
34°00'
55N
54N
53N
52N
51N
50N
49N
48N
47N
46N
45N
44N
43N
42N
41N
40N
39N
38N
37N
36N
35N
34N
33N
32N
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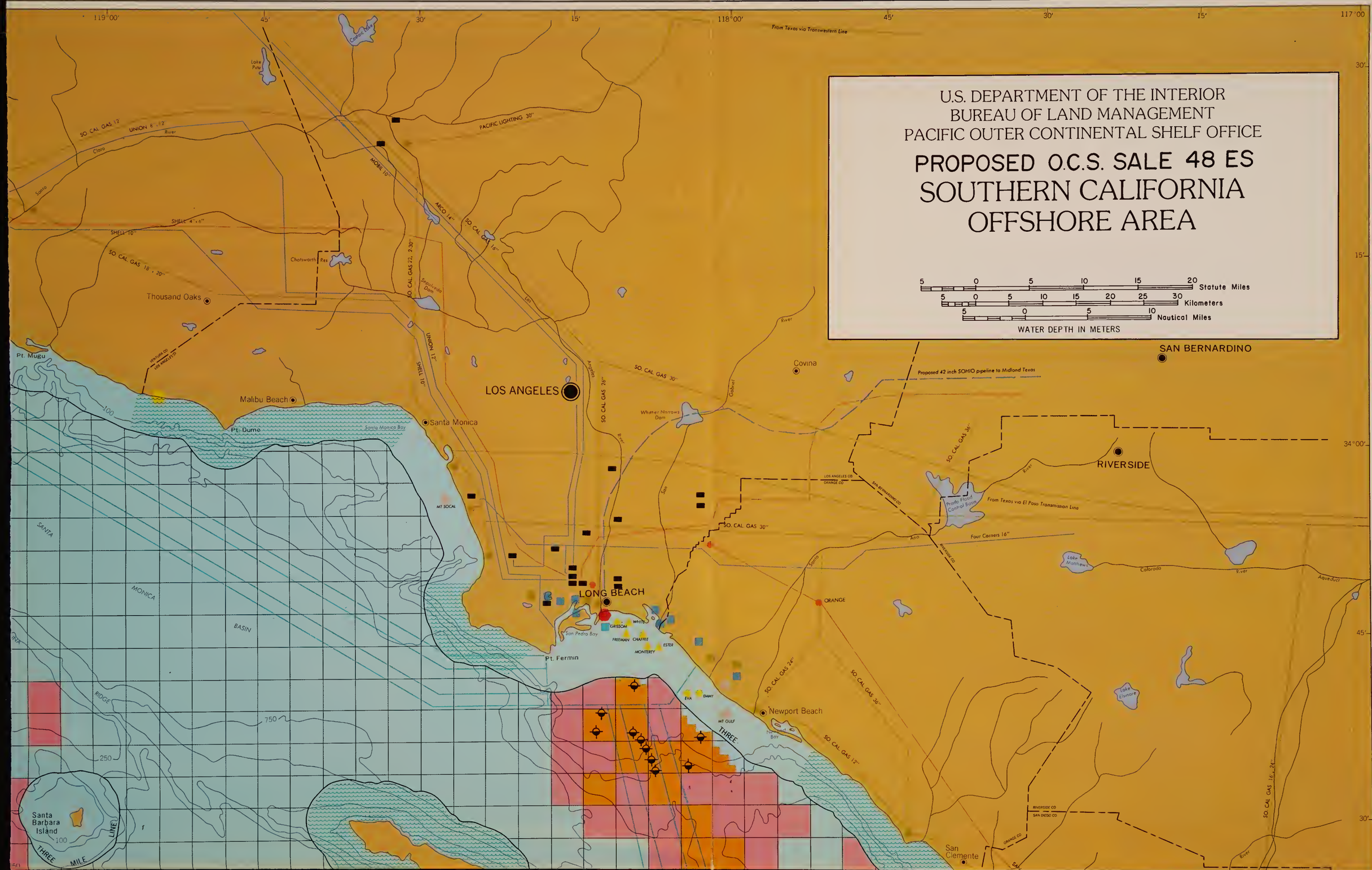
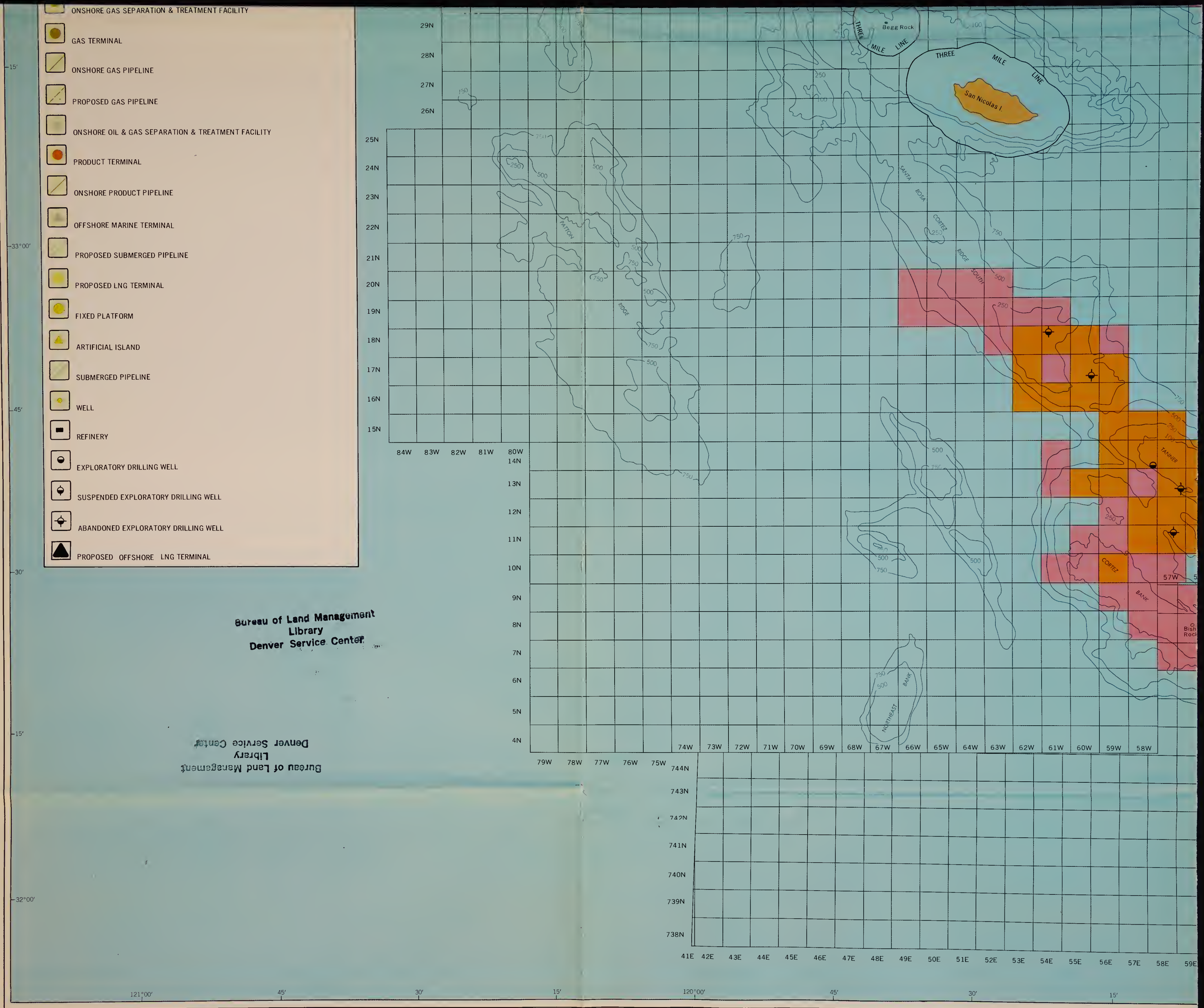
30N
93W
92W
91W
90W
89W
88W
87W
86W
85W
250
500
750


U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
Statute Miles
Kilometers
Nautical Miles
WATER DEPTH IN METERS
LOS ANGELES
LONG BEACH
SAN BERNARDINO
RIVERSIDE
Thousand Oaks
Malibu Beach
Santa Monica
Covina
ORANGE
Newport Beach
San Clemente
Pt. Mugu
Pt. Dume
Pt. Fermin
Santa Barbara Island
SANTA MONICA BASIN
THREE MILE LINE
From Texas via Transwestern Line
Proposed 42 inch SOHIO pipeline to Midland Texas
From Texas via El Paso Transmission Line
Four Corners 16"
Lake Matthews
Lake Elsinore
Prado Flood Control Basin
Whittier Narrows Dam
Santa Monica Bay
San Pedro Bay
Chatsworth Res
Sepulveda Dam
Lake Piru
Castaic Lake
Santa Ana River
Colorado River Aqueduct
119°00'
118°00'
117°00'
34°00'



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MEXICO AND UNITED STATES BOUNDARY LINE HAS NOT BEEN DETERMINED BY TREATY.

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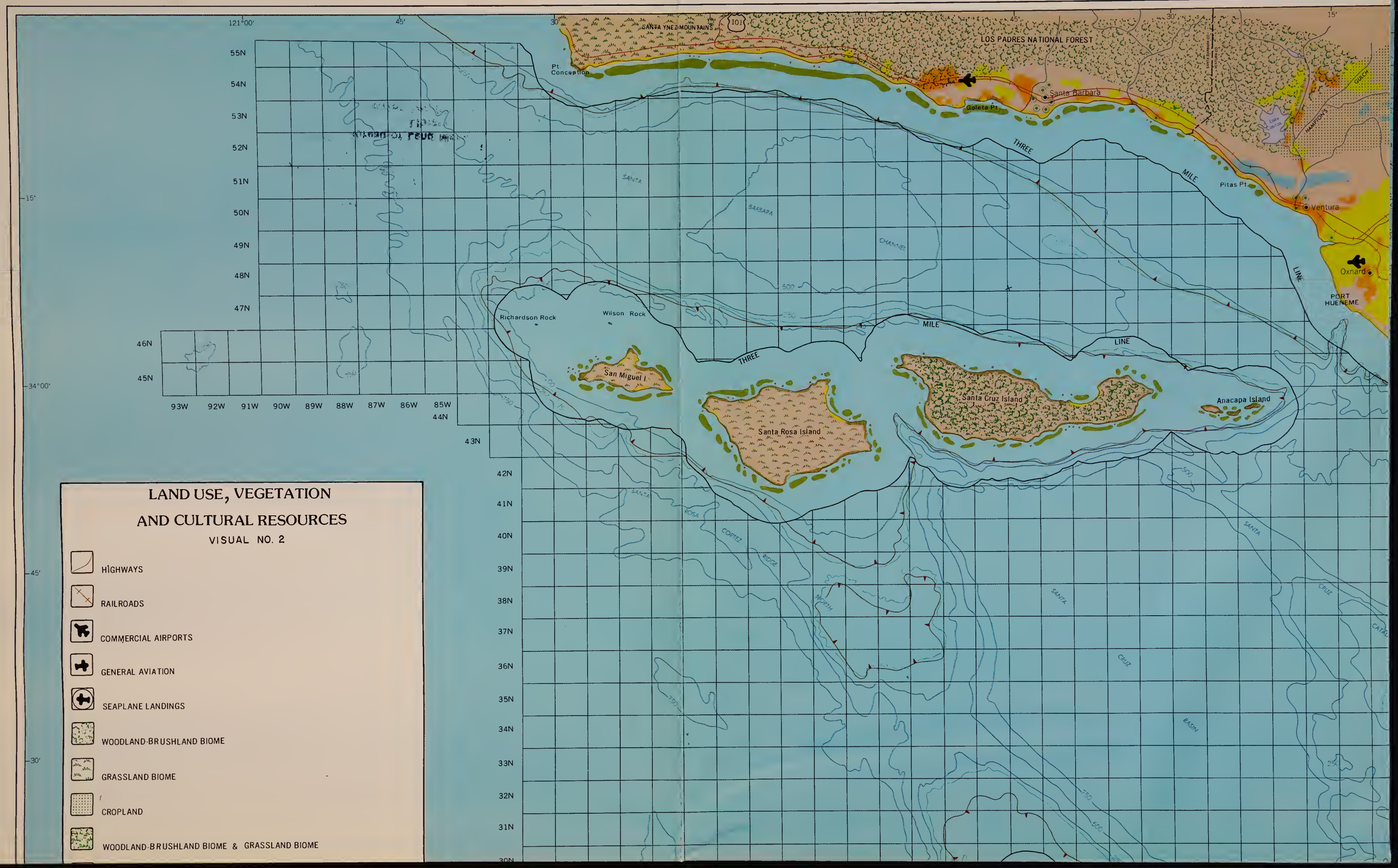
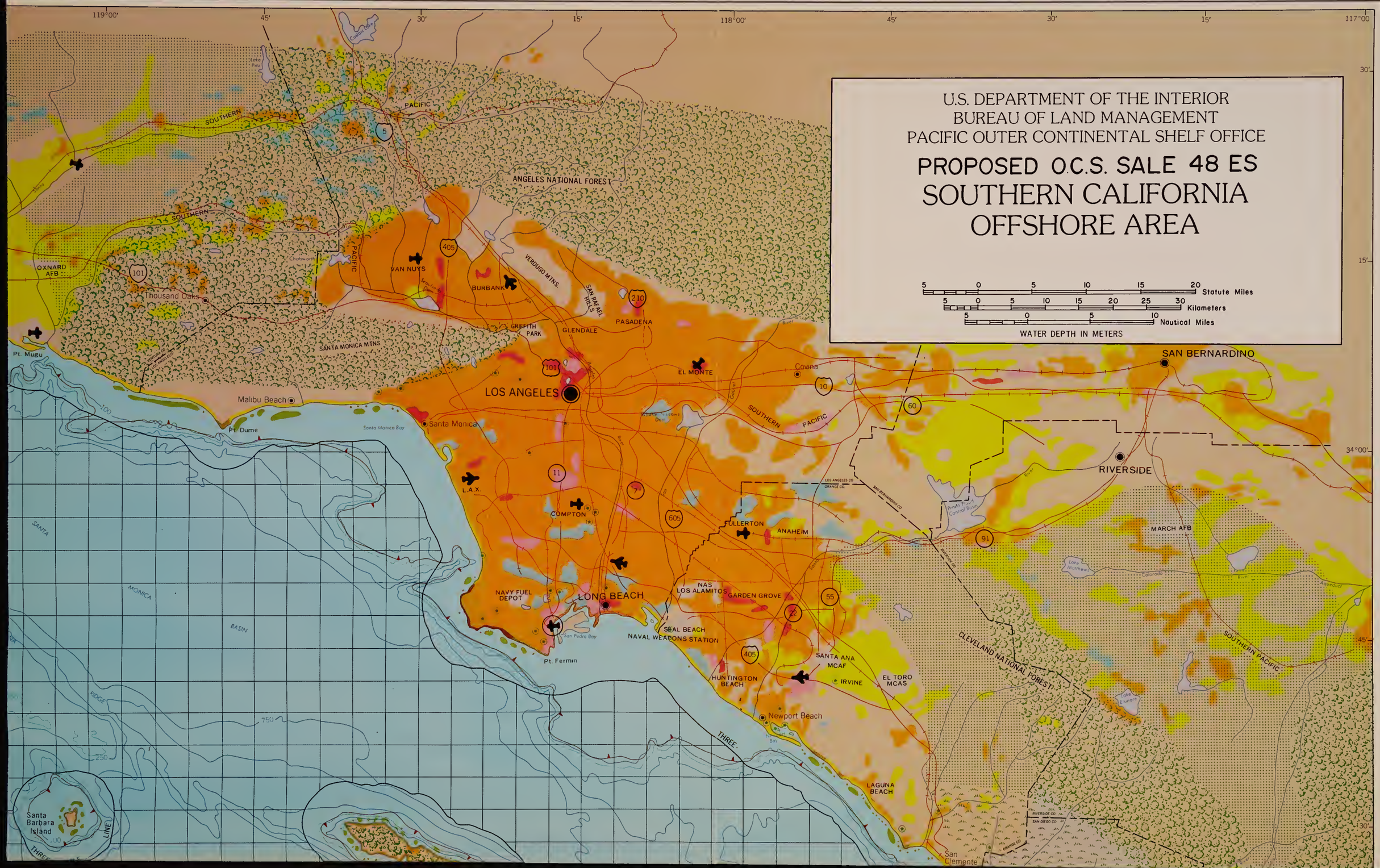

LAND USE, VEGETATION
AND CULTURAL RESOURCES
VISUAL NO. 2
HIGHWAYS
RAILROADS
COMMERCIAL AIRPORTS
GENERAL AVIATION
SEAPLANE LANDINGS
WOODLAND-BRUSHLAND BIOME
GRASSLAND BIOME
CROPLAND
WOODLAND-BRUSHLAND BIOME & GRASSLAND BIOME
121°00'
45'
30'
15'
120°00'
34°00'
55N
54N
53N
52N
51N
50N
49N
48N
47N
46N
45N
44N
43N
42N
41N
40N
39N
38N
37N
36N
35N
34N
33N
32N
31N
30N
93W
92W
91W
90W
89W
88W
87W
86W
85W
SANTA YNEZ MOUNTAINS
101
LOS PADRES NATIONAL FOREST
Pt. Conception
Goleta Pt.
Santa Barbara
Pitas Pt.
Ventura
Oxnard
PORT HUENEME
Richardson Rock
Wilson Rock
San Miguel I.
Santa Rosa Island
Santa Cruz Island
Anacapa Island
THREE MILE LINE
SANTA BARBARA CHANNEL
SANTA ROSA CORTEZ RIDGE
NORTH
SANTA CRUZ BASIN
SANTA CRUZ CATALINA
HAMPTON'S GULCH
500
750
250


U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
Statute Miles
Kilometers
Nautical Miles
WATER DEPTH IN METERS
119°00'
118°00'
117°00'
34°00'
ANGELES NATIONAL FOREST
SOUTHERN PACIFIC
OXNARD AFB
Thousand Oaks
VAN NUYS
BURBANK
VERDUGO MTNS.
SAN RAFAEL HILLS
PASADENA
GRIFFITH PARK
GLENDALE
SANTA MONICA MTNS
Pt. Mugu
Malibu Beach
Pt. Dume
Santa Monica
LOS ANGELES
EL MONTE
Covina
SAN BERNARDINO
RIVERSIDE
L.A.X.
COMPTON
FULLERTON
ANAHEIM
MARCH AFB
NAVY FUEL DEPOT
LONG BEACH
NAS LOS ALAMITOS
GARDEN GROVE
SEAL BEACH
NAVAL WEAPONS STATION
Pt. Fermin
HUNTINGTON BEACH
SANTA ANA MCAF
IRVINE
EL TORO MCAS
CLEVELAND NATIONAL FOREST
Newport Beach
LAGUNA BEACH
San Clemente
Santa Barbara Island
SANTA MONICA BASIN
THREE LINE

ROCKY SHORE INTERTIDAL ATTACHED ALGAE

KELP BEDS

URBAN

INDUSTRIAL

COMMERCIAL

AGRICULTURE

MILITARY

EXTRACTIVE (INCLUDING OIL)

AREA OF HIGHER PROBABILITY FOR ABORIGINAL SITES

APPROXIMATE AREA EXPOSED AT SEA LEVEL DEPRESSIONS OF: 100M

APPROXIMATE AREA EXPOSED AT SEA LEVEL DEPRESSIONS OF: 150M

SANDY BEACHES

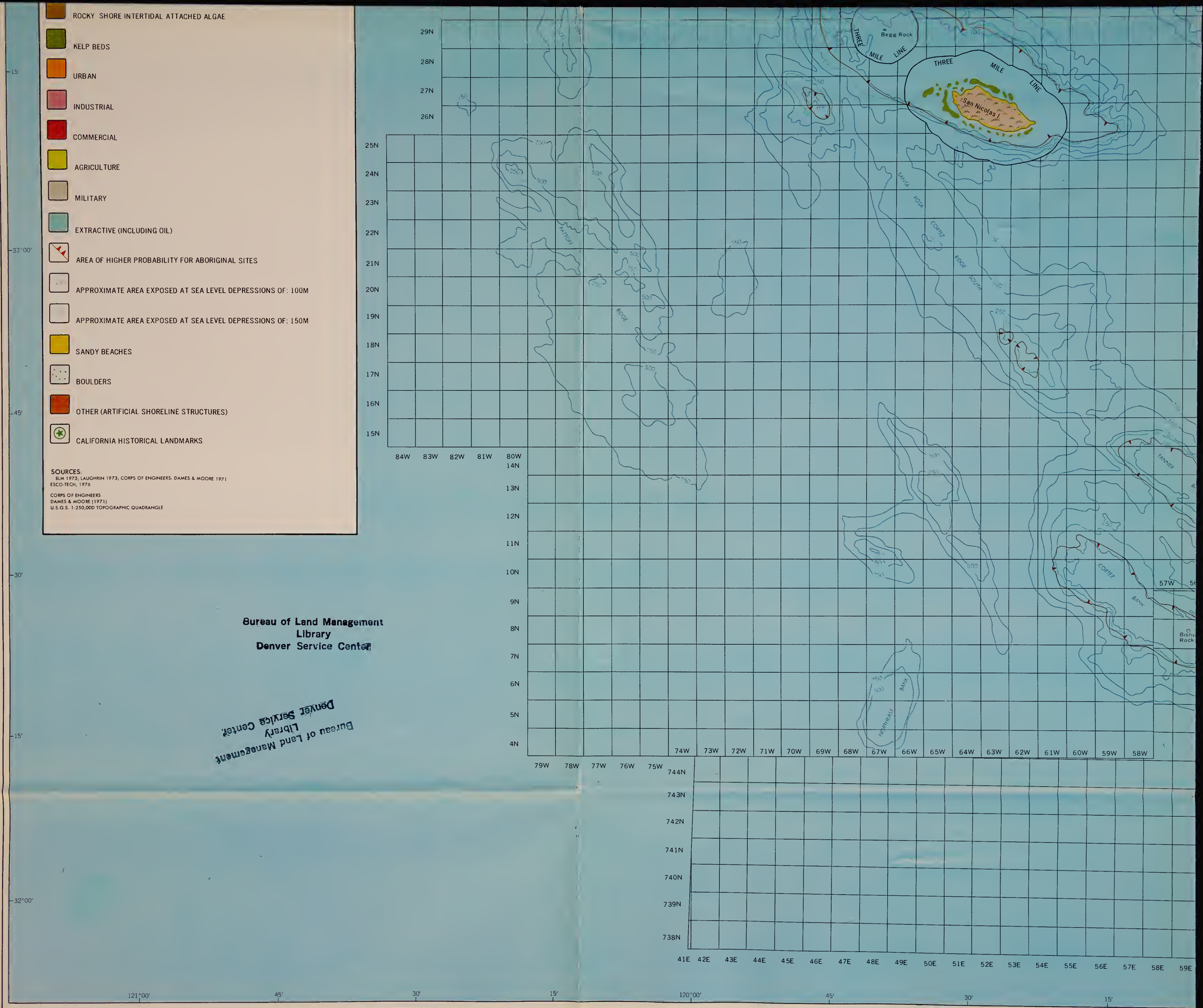
BOULDERS

OTHER (ARTIFICIAL SHORELINE STRUCTURES)

CALIFORNIA HISTORICAL LANDMARKS

SOURCES:
BLM 1973; LAUGHRIN 1973; CORPS OF ENGINEERS. DAMES & MOORE 1971
ESCO-TECH, 1976

CORPS OF ENGINEERS
DAMES & MOORE (1971)
U.S.G.S. 1:250,000 TOPOGRAPHIC QUADRANGLE



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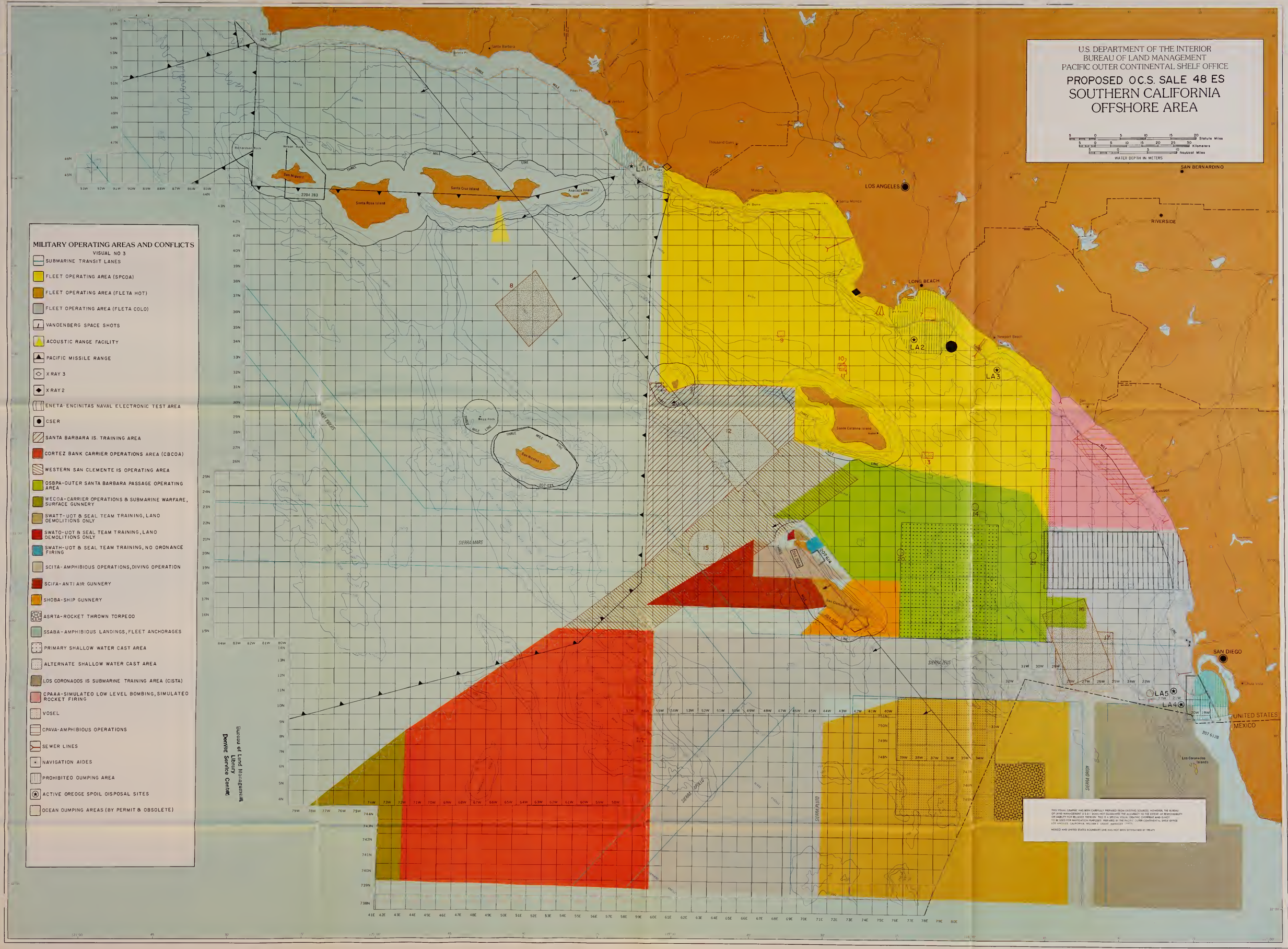
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PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
Statute Miles
Kilometers
Nautical Miles
WATER DEPTH IN METERS
MILITARY OPERATING AREAS AND CONFLICTS
VISUAL NO 3
SUBMARINE TRANSIT LANES
FLEET OPERATING AREA (SPCOA)
FLEET OPERATING AREA (FLETA HOT)
FLEET OPERATING AREA (FLETA COLD)
VANDENBERG SPACE SHOTS
ACOUSTIC RANGE FACILITY
PACIFIC MISSILE RANGE
X RAY 3
X RAY 2
ENETA-ENCINITAS NAVAL ELECTRONIC TEST AREA
CSER
SANTA BARBARA IS. TRAINING AREA
CORTEZ BANK CARRIER OPERATIONS AREA (CBCOA)
WESTERN SAN CLEMENTE IS OPERATING AREA
OSBPA-OUTER SANTA BARBARA PASSAGE OPERATING AREA
WECOA-CARRIER OPERATIONS & SUBMARINE WARFARE, SURFACE GUNNERY
SWATT-UDT & SEAL TEAM TRAINING, LAND DEMOLITIONS ONLY
SWATD-UDT & SEAL TEAM TRAINING, LAND DEMOLITIONS ONLY
SWATH-UDT & SEAL TEAM TRAINING, NO ORDNANCE FIRING
SCITA-AMPHIBIOUS OPERATIONS, DIVING OPERATION
SCIFA-ANTI AIR GUNNERY
SHOBA-SHIP GUNNERY
ASRTA-ROCKET THROWN TORPEDO
SSABA-AMPHIBIOUS LANDINGS, FLEET ANCHORAGES
PRIMARY SHALLOW WATER CAST AREA
ALTERNATE SHALLOW WATER CAST AREA
LOS CORONADOS IS SUBMARINE TRAINING AREA (CISTA)
CPAAA-SIMULATED LOW LEVEL BOMBING, SIMULATED ROCKET FIRING
VOSEL
CPAVA-AMPHIBIOUS OPERATIONS
SEWER LINES
NAVIGATION AIDES
PROHIBITED DUMPING AREA
ACTIVE DREDGE SPOIL DISPOSAL SITES
OCEAN DUMPING AREAS (BY PERMIT & OBSOLETE)
Santa Barbara
Ventura
Oxnard
Thousand Oaks
Malibu Beach
Santa Monica
LOS ANGELES
SAN BERNARDINO
RIVERSIDE
LONG BEACH
Newport Beach
San Clemente
OCEANSIDE
SAN DIEGO
Chula Vista
UNITED STATES
MEXICO
Los Coronados Islands
Santa Cruz Island
Santa Rosa Island
San Miguel I
Anacapa Island
Santa Catalina Island
San Nicolas I
San Clemente Island
Richardson Rock
Beuf Rock
Pt. Conception
Pt. Dume
Pt. Fermin
Pitas Pt.
THREE MILE LINE
SANTA BARBARA
CHANNEL
SANTA MONICA BASIN
SIERRA MARS
SIERRA ZEUS
SIERRA APOLLO
SIERRA PLUTO
SIERRA ORION
LA1
LA2
LA3
LA4
LA5
204
2204 283
207 615
207 614
207 6128
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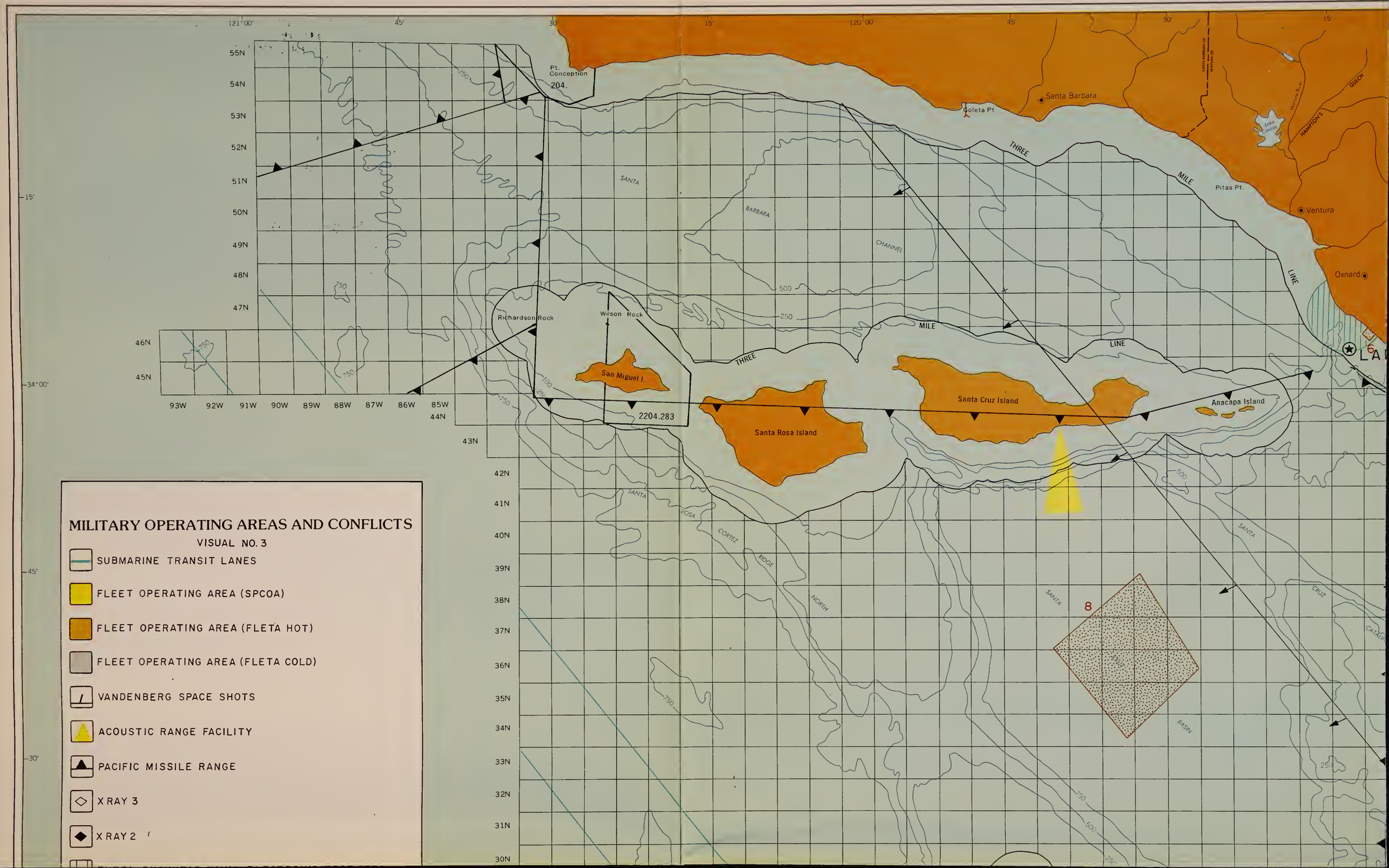
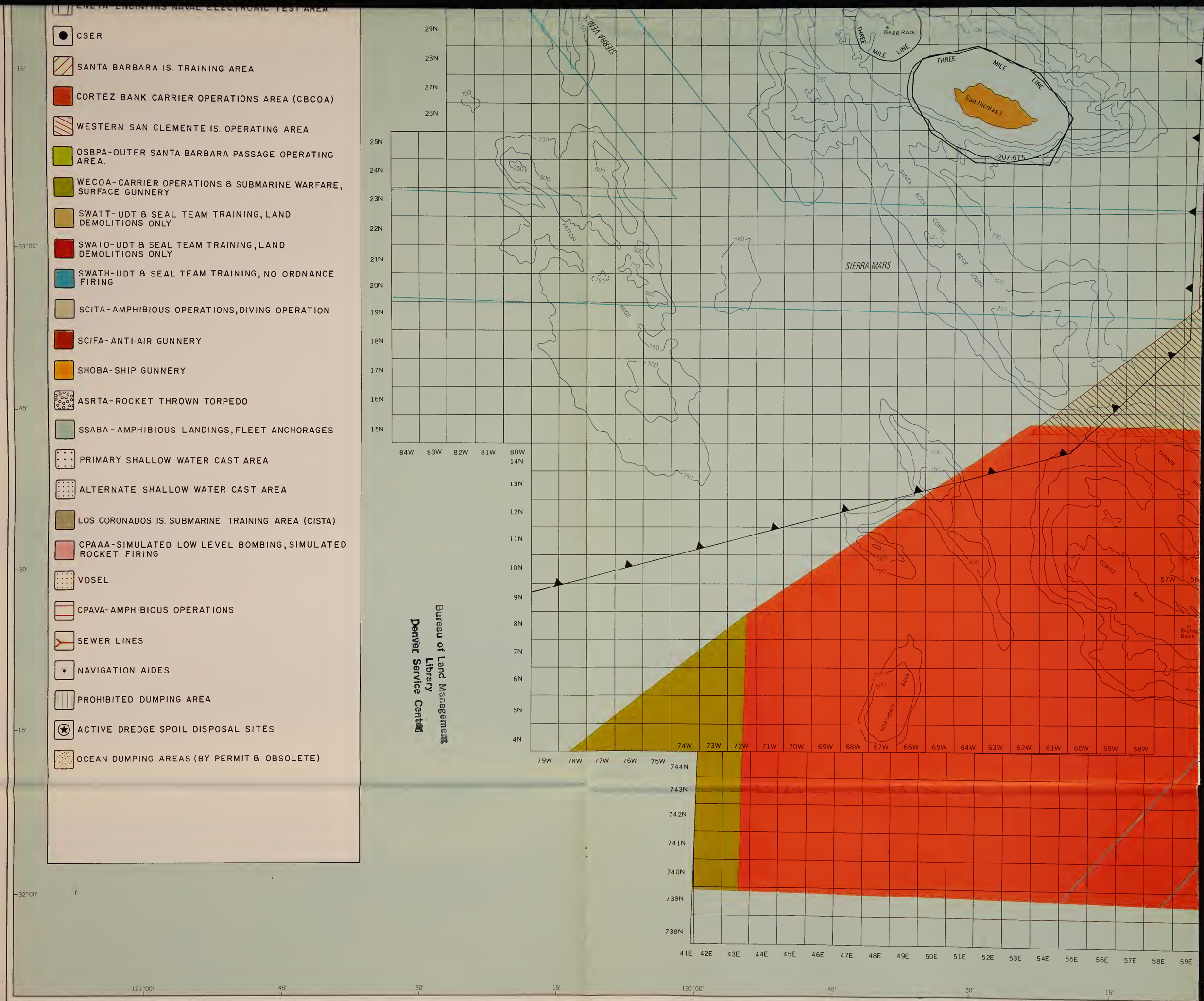

MILITARY OPERATING AREAS AND CONFLICTS
VISUAL NO. 3
SUBMARINE TRANSIT LANES
FLEET OPERATING AREA (SPCOA)
FLEET OPERATING AREA (FLETA HOT)
FLEET OPERATING AREA (FLETA COLD)
VANDENBERG SPACE SHOTS
ACOUSTIC RANGE FACILITY
PACIFIC MISSILE RANGE
X RAY 3
X RAY 2
Pt. Conception
204.
Santa Barbara
Goleta Pt
Pitas Pt.
Ventura
Oxnard
Richardson Rock
Wilson Rock
San Miguel I.
2204.283
Santa Rosa Island
Santa Cruz Island
Anacapa Island
SANTA BARBARA CHANNEL
THREE MILE LINE
SANTA ROSA CORTEZ RIDGE NORTH
SANTA CRUZ BASIN
8
121°00'
120°00'
34°00'
45'
30'
15'

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers
5 0 5 10 Nautical Miles
WATER DEPTH IN METERS
119°00'
45'
30'
15'
118°00'
117°00'
34°00'
Thousand Oaks
Pt. Mugu
Malibu Beach
Pt. Dume
Santa Monica
LOS ANGELES
Covina
SAN BERNARDINO
RIVERSIDE
LONG BEACH
Pt. Fermin
Newport Beach
San Clemente
Santa Barbara Island
SANTA MONICA BASIN
RIDGE
THREE MILE LINE
LA2
LA3
7
9
10
11
100
250
750



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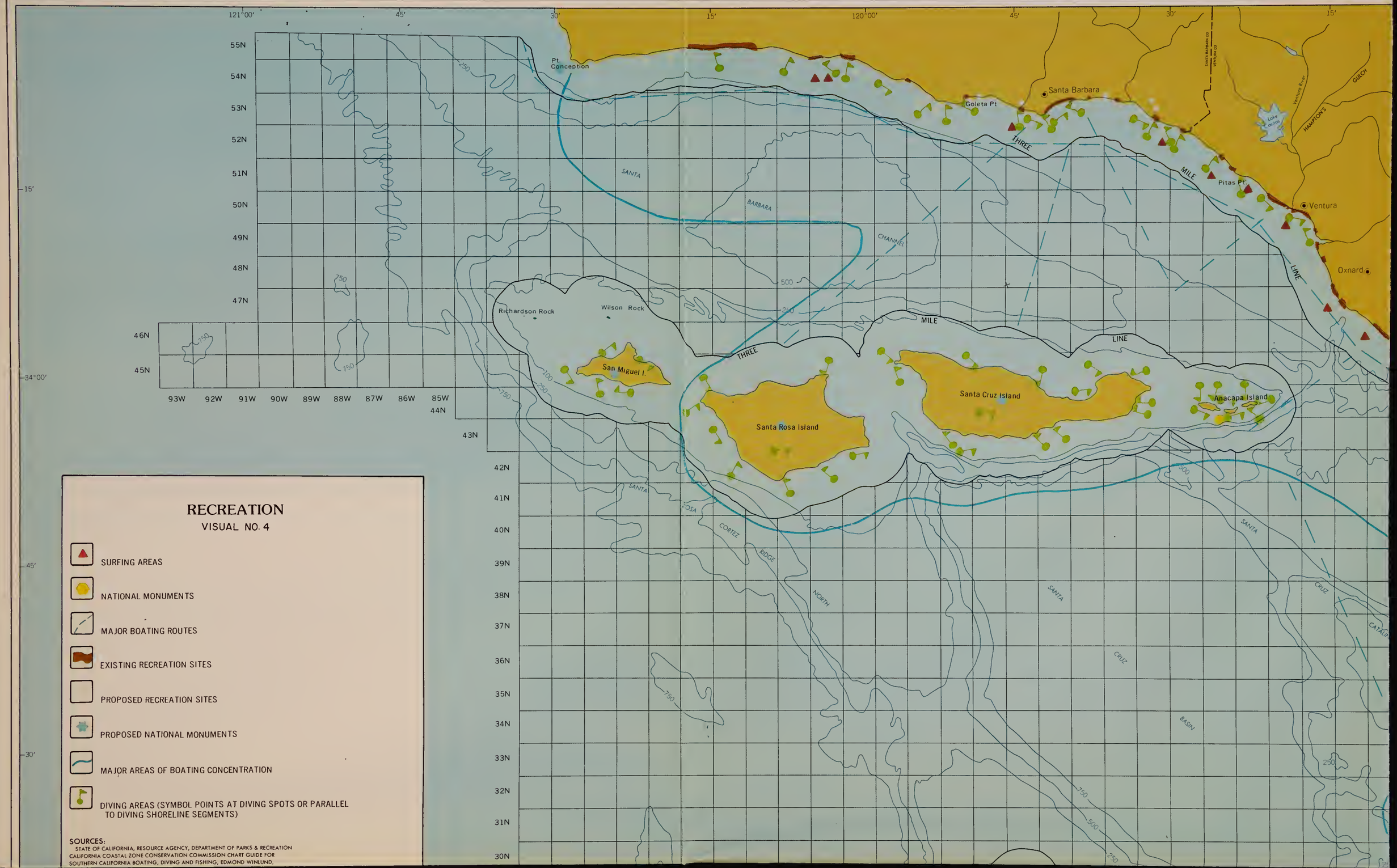
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
Statute Miles
Kilometers
Nautical Miles
WATER DEPTH IN METERS
RECREATION
VISUAL NO 4
SURFING AREAS
NATIONAL MONUMENTS
MAJOR BOATING ROUTES
EXISTING RECREATION SITES
PROPOSED RECREATION SITES
PROPOSED NATIONAL MONUMENTS
MAJOR AREAS OF BOATING CONCENTRATION
DIVING AREAS (SYMBOL POINTS AT DIVING SPOTS OR PARALLEL TO DIVING SHORELINE SEGMENTS)
SOURCES:
STATE OF CALIFORNIA, RESOURCE AGENCY, DEPARTMENT OF PARKS & RECREATION
CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION CHART GUIDE FOR SOUTHERN CALIFORNIA BOATING, DIVING AND FISHING, EDMOND WYNLAND, 1973
RESPECTIVE COUNTY PLANNING & RECREATION DEPARTMENTS
AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA COUNTY MAPS FOR RESPECTIVE COUNTIES
LOS ANGELES
SAN BERNARDINO
RIVERSIDE
LONG BEACH
SAN DIEGO
UNITED STATES
MEXICO
Los Coronados Islands
Santa Rosa Island
Santa Cruz Island
Anacapa Island
San Miguel I
Santa Barbara Island
Santa Catalina Island
San Clemente Island
Bean Rock
Richardson Rock
Wilson Rock
THREE MILE LINE
Ventura
Oxnard
Thousand Oaks
Malibu Beach
Pt Dume
Santa Monica
Pt Fermin
Newport Beach
Oceanside
Chula Vista
Santa Barbara
Pt Conception
Gaviota Pt
Pitas Pt
Pt Mugu
Santa Barbara Basin
Santa Cruz Basin
Santa Rosa Basin
Catalina Basin
San Nicolas Basin
San Clemente Basin
Tanner Bank
Cortes Bank
Nicolas Bank
Coronado Bank
Pt Loma
Lake Hodges
Lake Elsinore
Lake Perris
Salton Sea
Mount San Jacinto
Mount San Gorgonio
Mount Baldy
Mount Pinos
Mount Wilson
Mt Lowe
Mt Harvard
Mt Lawlor
Mt Ord
Mt Gleason
Mt Pacifico
Mt Lukens
Mt Hillyer
Mt Baldy
Mt Gordon
Mt Ontario
Mt Deception
Mt Lewis
Mt Cuyamaca
Mt Laguna
Mt Tecate
Mt Cuyamaca
Mt Laguna
Mt Tecate
Mt Cuyamaca
Mt Laguna
Mt Tecate


RECREATION
VISUAL NO. 4
SURFING AREAS
NATIONAL MONUMENTS
MAJOR BOATING ROUTES
EXISTING RECREATION SITES
PROPOSED RECREATION SITES
PROPOSED NATIONAL MONUMENTS
MAJOR AREAS OF BOATING CONCENTRATION
DIVING AREAS (SYMBOL POINTS AT DIVING SPOTS OR PARALLEL TO DIVING SHORELINE SEGMENTS)
SOURCES:
STATE OF CALIFORNIA, RESOURCE AGENCY, DEPARTMENT OF PARKS & RECREATION
CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION CHART GUIDE FOR SOUTHERN CALIFORNIA BOATING, DIVING AND FISHING, EDMOND WINLUND.
Pt Conception
Santa Barbara
Goleta Pt
Pitas Pt
Ventura
Oxnard
Richardson Rock
Wilson Rock
San Miguel I.
Santa Rosa Island
Santa Cruz Island
Anacapa Island
THREE MILE LINE
SANTA BARBARA CHANNEL
SANTA ROSA CORTEZ RIDGE
NORTH SANTA CRUZ BASIN
SANTA CRUZ CATALINA
HAMPTON'S GULCH
Ventura River
Lake Casitas
SANTA BARBARA CO
VENTURA CO
121°00'
45'
30'
15'
120°00'
34°00'
55N
54N
53N
52N
51N
50N
49N
48N
47N
46N
45N
44N
43N
42N
41N
40N
39N
38N
37N
36N
35N
34N
33N
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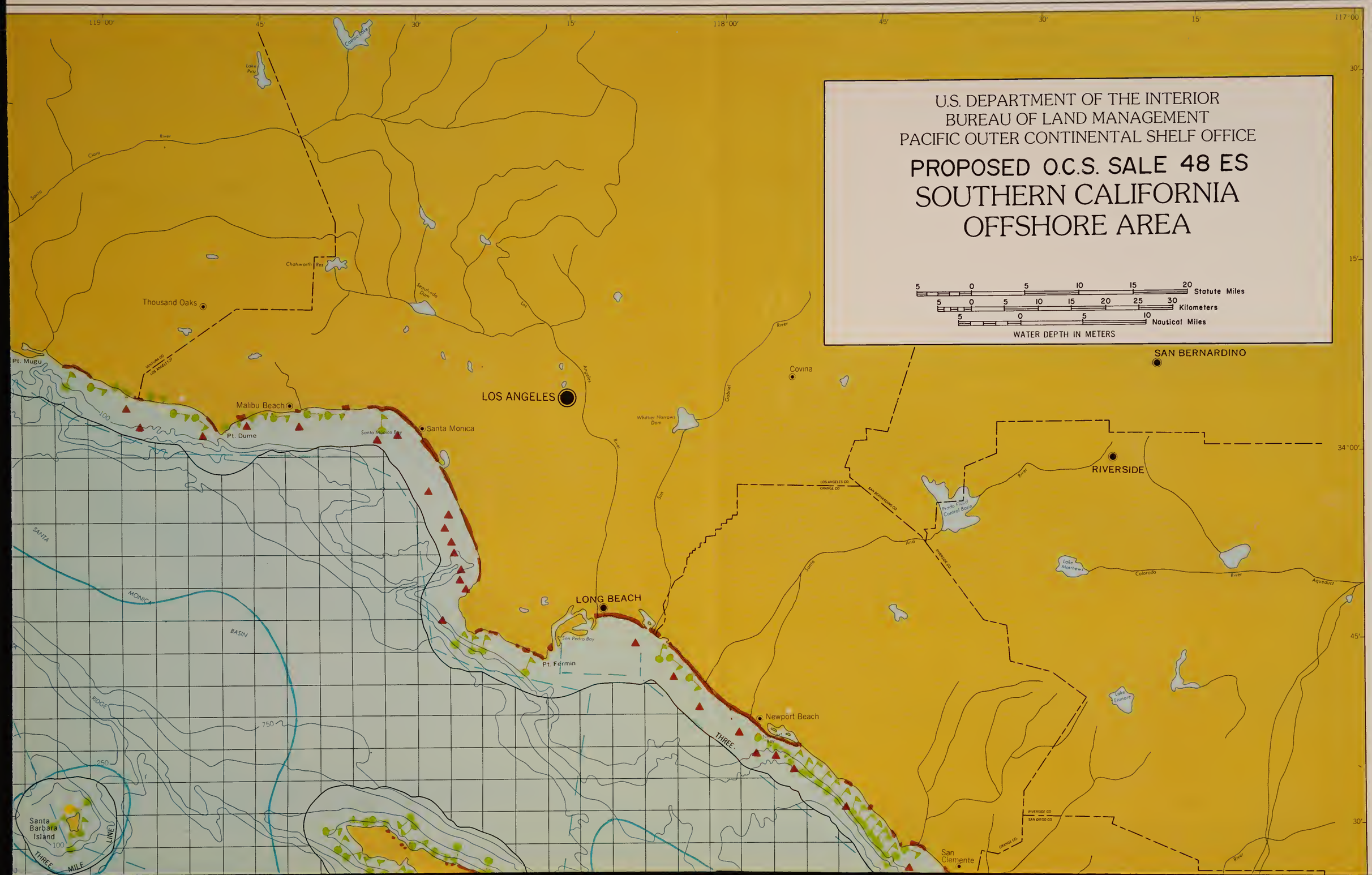
86W
85W
250
500
750
100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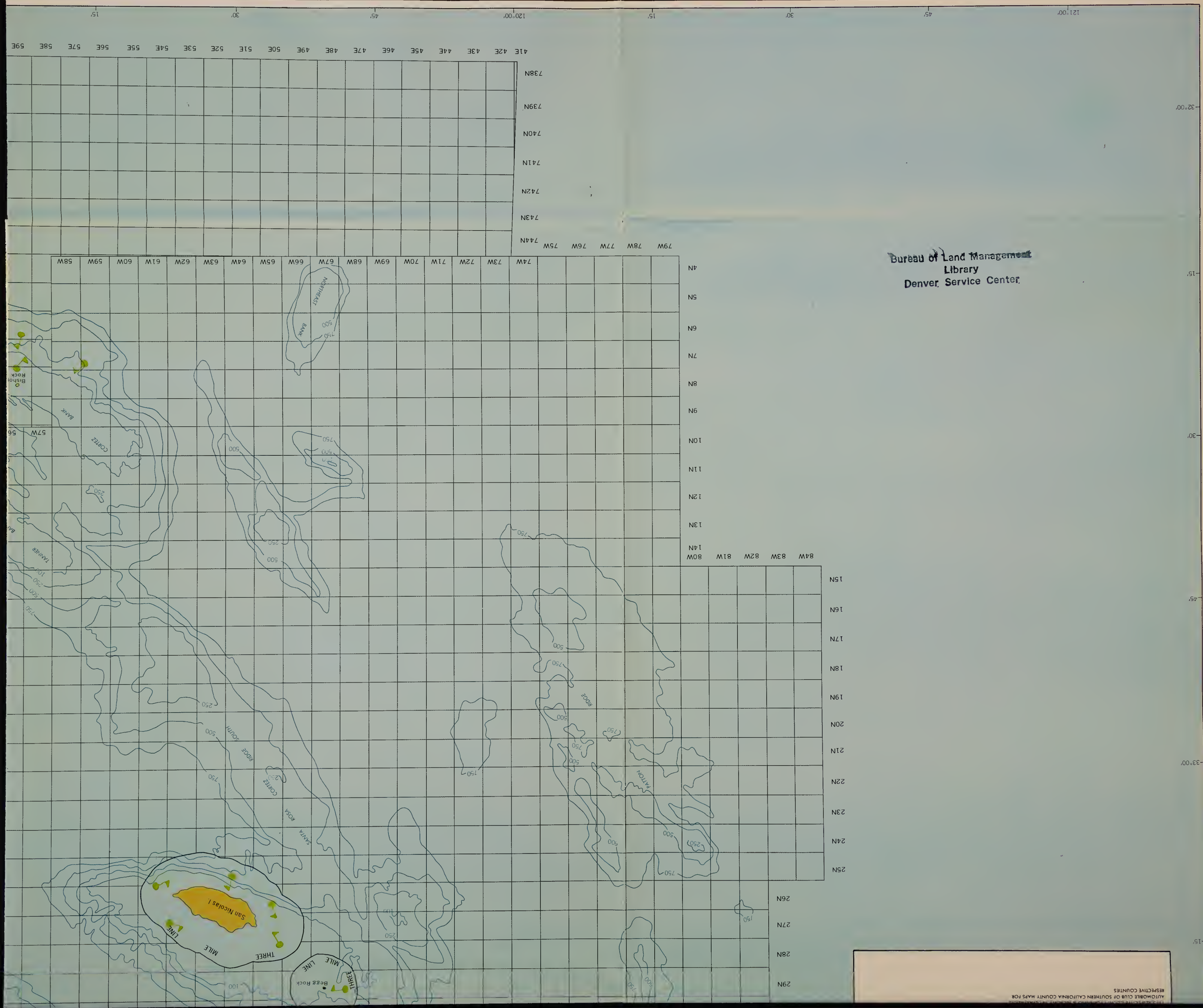
SOUTHERN CALIFORNIA
OFFSHORE AREA
5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers
5 0 5 10 Nautical Miles
WATER DEPTH IN METERS
119°00'
45'
30'
15'
118°00'
117°00'
34°00'
Castaic Lake
Lake Piru
Santa Clara River
Chatsworth Res
Thousand Oaks
Pt. Mugu
Malibu Beach
Pt. Dume
Santa Monica Bay
Santa Monica
LOS ANGELES
Sepulveda Dam
Los Angeles River
Whittier Narrows Dam
San Gabriel River
Covina
SAN BERNARDINO
RIVERSIDE
Prado Flood Control Basin
Santa Ana River
Lake Mathews
Colorado River Aqueduct
Lake Elsinore
LONG BEACH
San Pedro Bay
Pt. Fermin
Newport Beach
San Clemente
SANTA MONICA BASIN
RIDGE
THREE MILE LINE
Santa Barbara Island
100
750
250
LOS ANGELES CO.
ORANGE CO.
SAN BERNARDINO CO.
RIVERSIDE CO.
SAN DIEGO CO.



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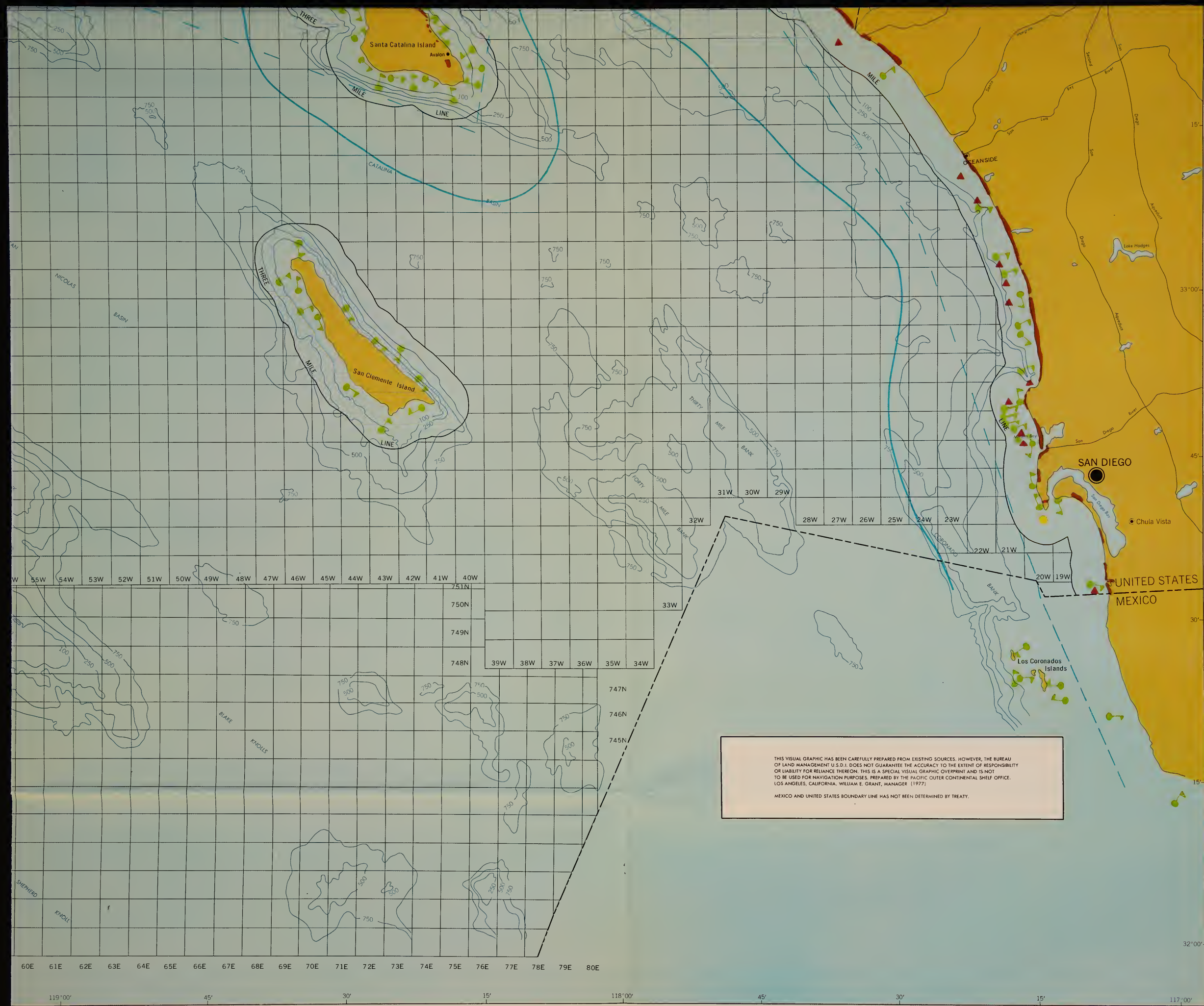
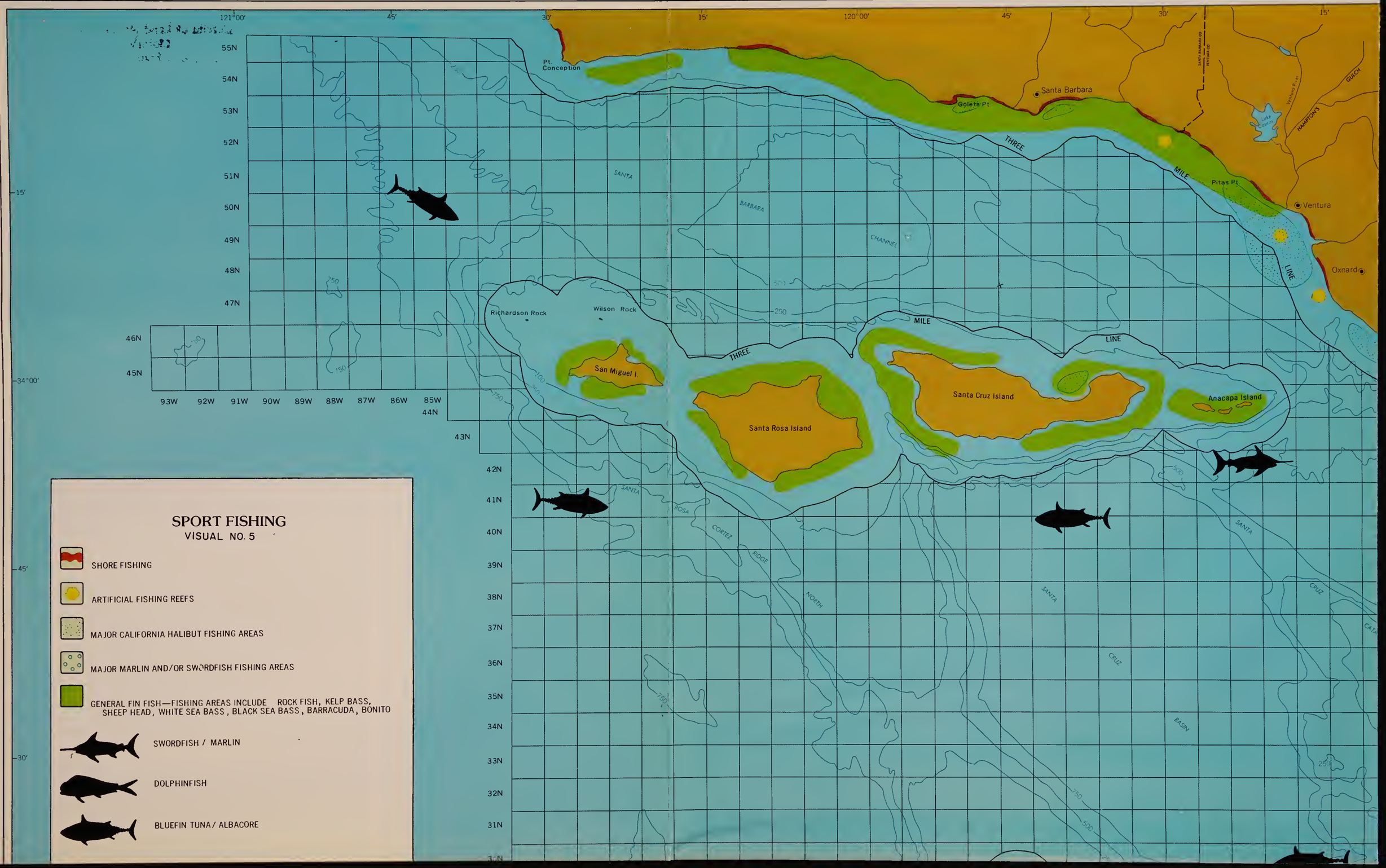
Denver Service Center

AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA COUNTY MAPS FOR
RESPECTIVE COUNTIES


Santa Catalina Island
Avalon
THREE MILE LINE
CATALINA BASIN
San Clemente Island
THREE MILE LINE
NICOLAS BASIN
THIRTY MILE BANK
FORTY MILE BANK
CORONADO BANK
BLAKE KNOLLS
SHEPHERD KNOLL
OCEANSIDE
Lake Hodges
SAN DIEGO
San Diego Bay
Chula Vista
UNITED STATES
MEXICO
Los Coronados Islands
THIS VISUAL GRAPHIC HAS BEEN CAREFULLY PREPARED FROM EXISTING SOURCES. HOWEVER, THE BUREAU OF LAND MANAGEMENT U.S.D.I. DOES NOT GUARANTEE THE ACCURACY TO THE EXTENT OF RESPONSIBILITY OR LIABILITY FOR RELIANCE THEREON. THIS IS A SPECIAL VISUAL GRAPHIC OVERPRINT AND IS NOT TO BE USED FOR NAVIGATION PURPOSES. PREPARED BY THE PACIFIC OUTER CONTINENTAL SHELF OFFICE. LOS ANGELES, CALIFORNIA. WILLIAM E. GRANT, MANAGER (1977)
MEXICO AND UNITED STATES BOUNDARY LINE HAS NOT BEEN DETERMINED BY TREATY.
119°00′
45′
30′
15′
118°00′
45′
30′
15′
117°00′
33°00′
45′
30′
15′
32°00′

Bureau of Land Management
Library
Denver Service Center


SPORT FISHING
VISUAL NO. 5
SHORE FISHING
ARTIFICIAL FISHING REEFS
MAJOR CALIFORNIA HALIBUT FISHING AREAS
MAJOR MARLIN AND/OR SWORDFISH FISHING AREAS
GENERAL FIN FISH—FISHING AREAS INCLUDE ROCK FISH, KELP BASS, SHEEP HEAD, WHITE SEA BASS, BLACK SEA BASS, BARRACUDA, BONITO
SWORDFISH / MARLIN
DOLPHINFISH
BLUEFIN TUNA / ALBACORE
Pt. Conception
Goleta Pt
Santa Barbara
Pitas Pt.
Ventura
Oxnard
Richardson Rock
Wilson Rock
San Miguel I.
Santa Rosa Island
Santa Cruz Island
Anacapa Island
THREE MILE LINE
SANTA BARBARA CHANNEL
SANTA ROSA CORTEZ RIDGE
NORTH SANTA CRUZ BASIN
SANTA CRUZ
HAMPTON'S GULCH
Lake Casitas
Ventura R.
SANTA BARBARA CO
VENTURA CO
121°00'
120°00'
45'
30'
15'
34°00'
55N
54N
53N
52N
51N
50N
49N
48N
47N
46N
45N
44N
43N
42N
41N
40N
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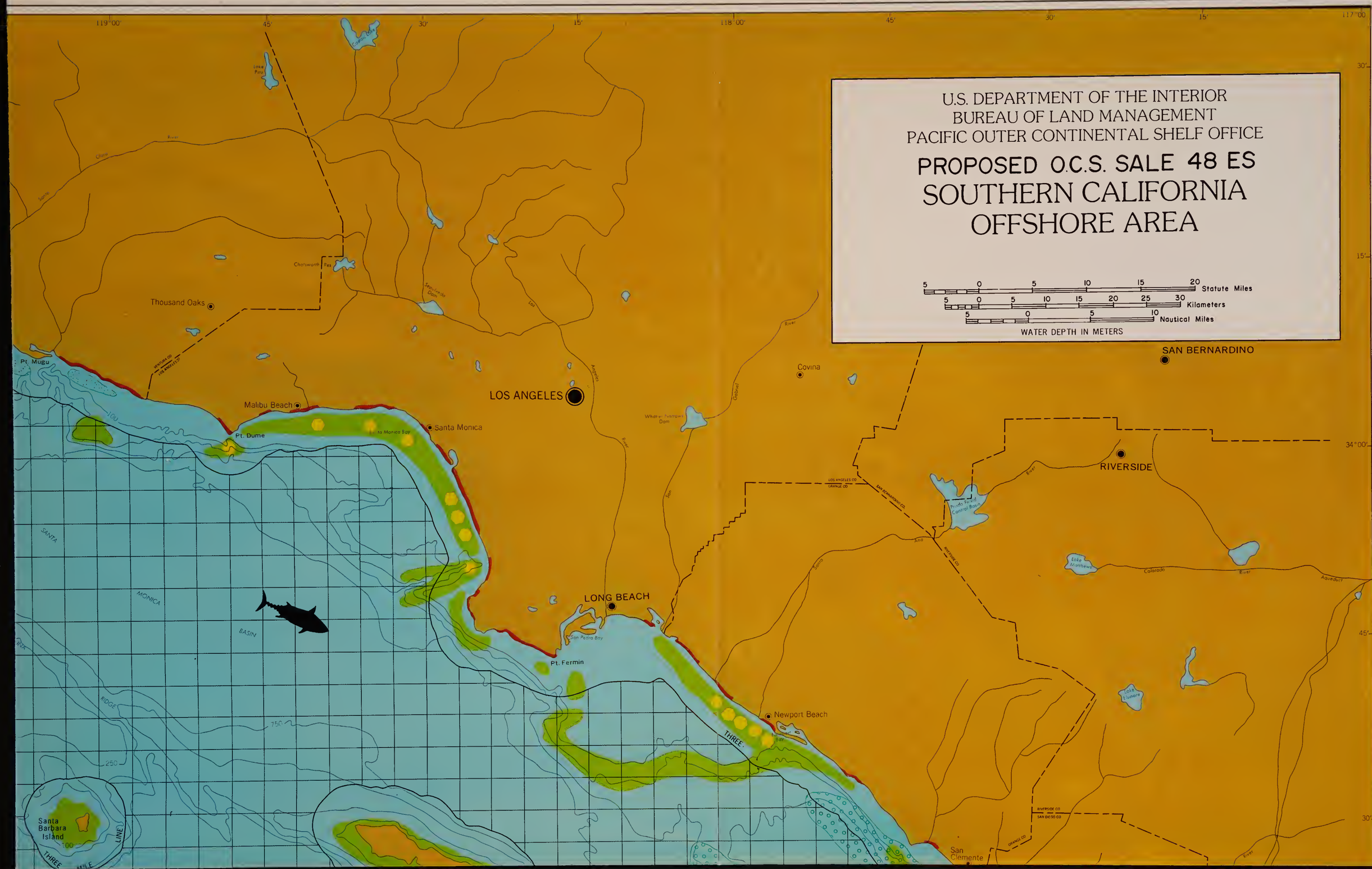
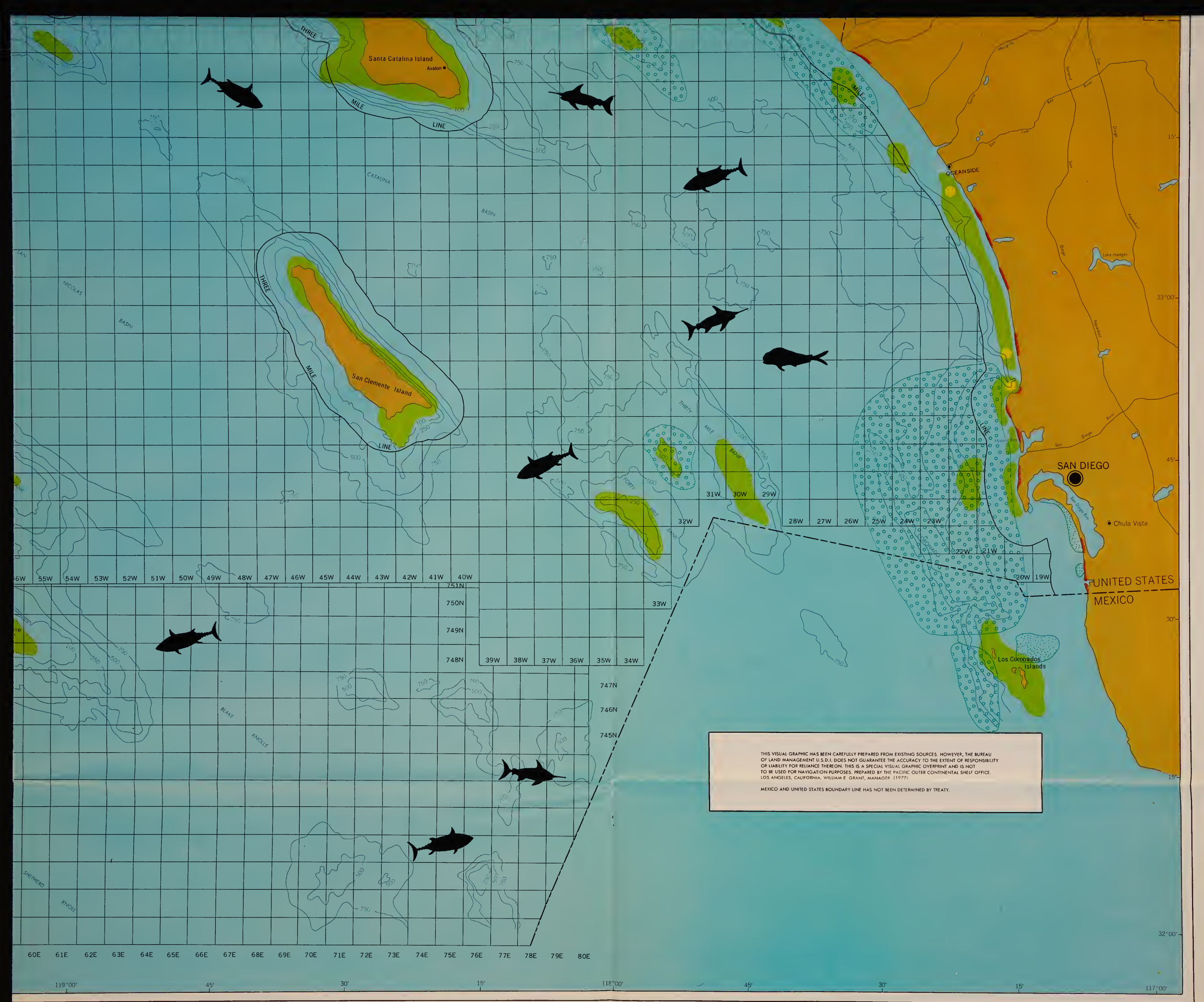
38N
37N
36N
35N
34N
33N
32N
31N
93W
92W
91W
90W
89W
88W
87W
86W
85W


U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
Statute Miles
Kilometers
Nautical Miles
WATER DEPTH IN METERS
119°00'
118°00'
117°00'
34°00'
Thousand Oaks
Pt. Mugu
Malibu Beach
Pt. Dume
Santa Monica
LOS ANGELES
Covina
SAN BERNARDINO
RIVERSIDE
LONG BEACH
Pt. Fermin
Newport Beach
San Clemente
Santa Barbara Island
SANTA MONICA BASIN
THREE MILE LINE

Bureau of Land Management
Library
Denver Service Center

SOURCES:
PACIFIC ANGLERS GUIDE, N.O.A.A. NATIONAL MARINE FISHERIES SERVICE, 1977,
AND CHART GUIDE FOR SOUTHERN CALIFORNIA BOATING, DIVING AND
FISHING, EDMOND WINLUND, 1975


Santa Catalina Island
Avalon
THREE MILE LINE
CATALINA BASIN
SAN NICOLAS BASIN
San Clemente Island
THREE MILE LINE
THIRTY MILE BANK
FORTY MILE BANK
MILE LINE
OCEANSIDE
Lake Hodges
SAN DIEGO
Chula Vista
UNITED STATES
MEXICO
Los Coronados Islands
BLAKE KNOLLS
SHEPHERD KNOLL
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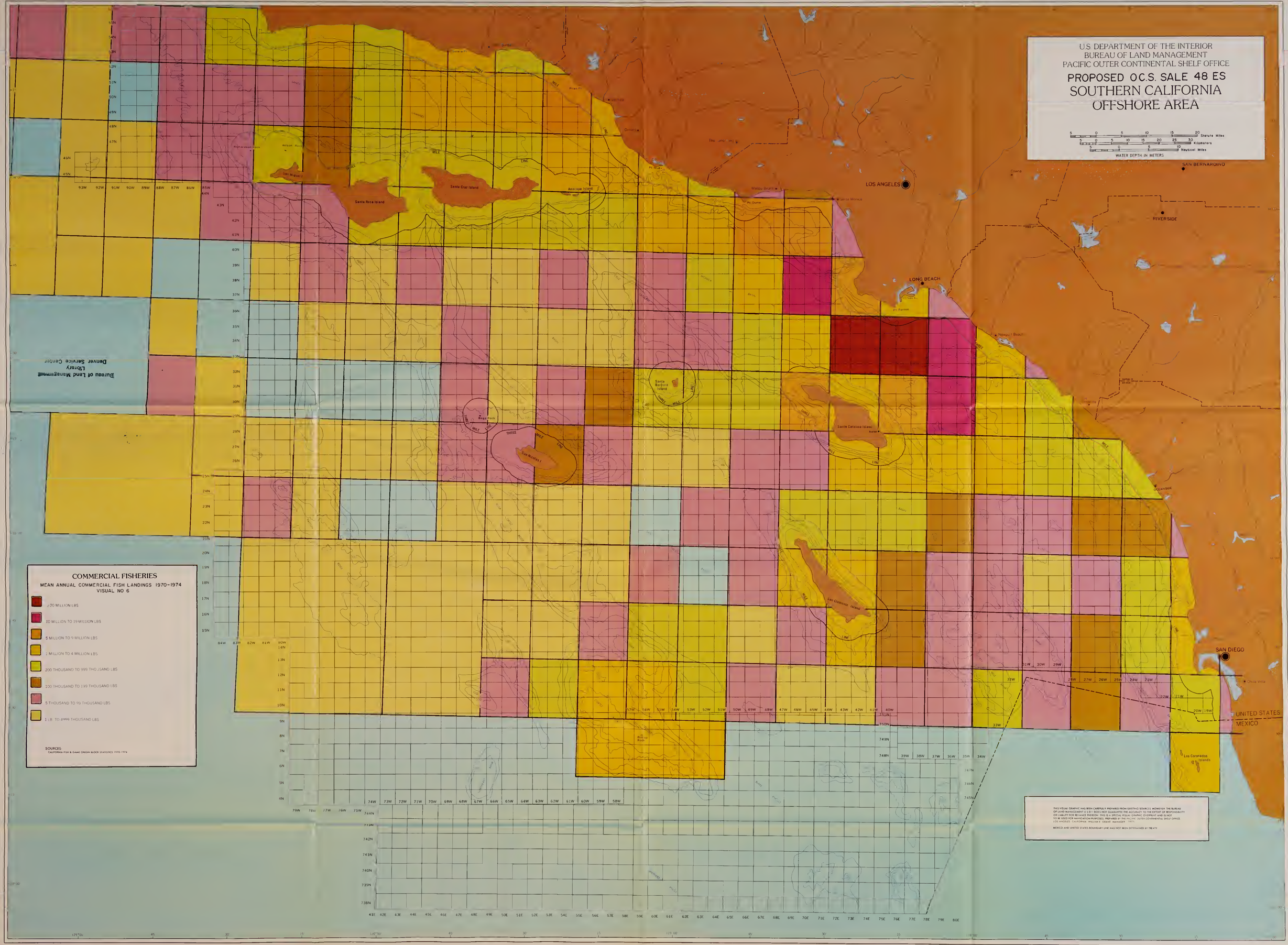
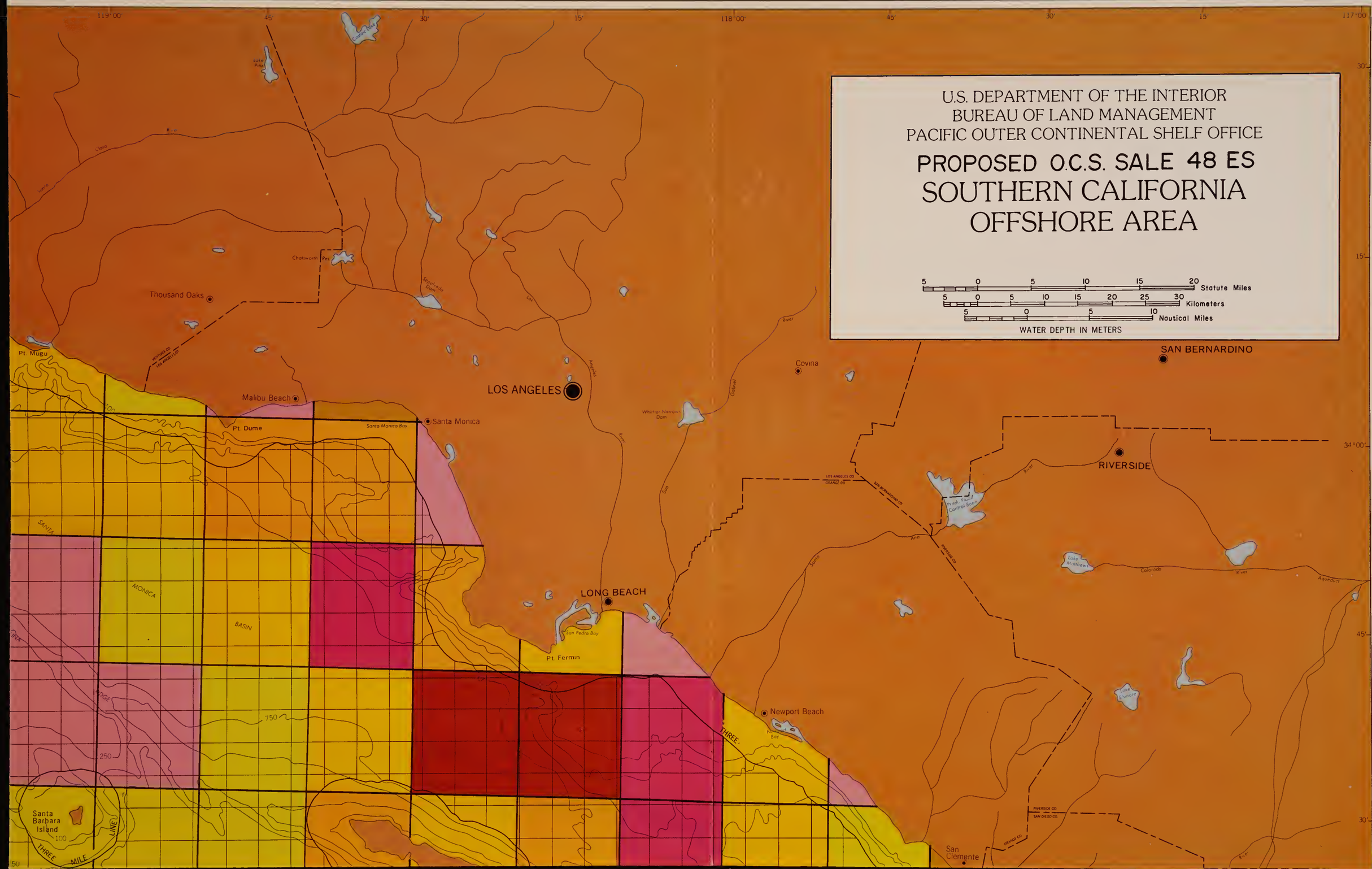
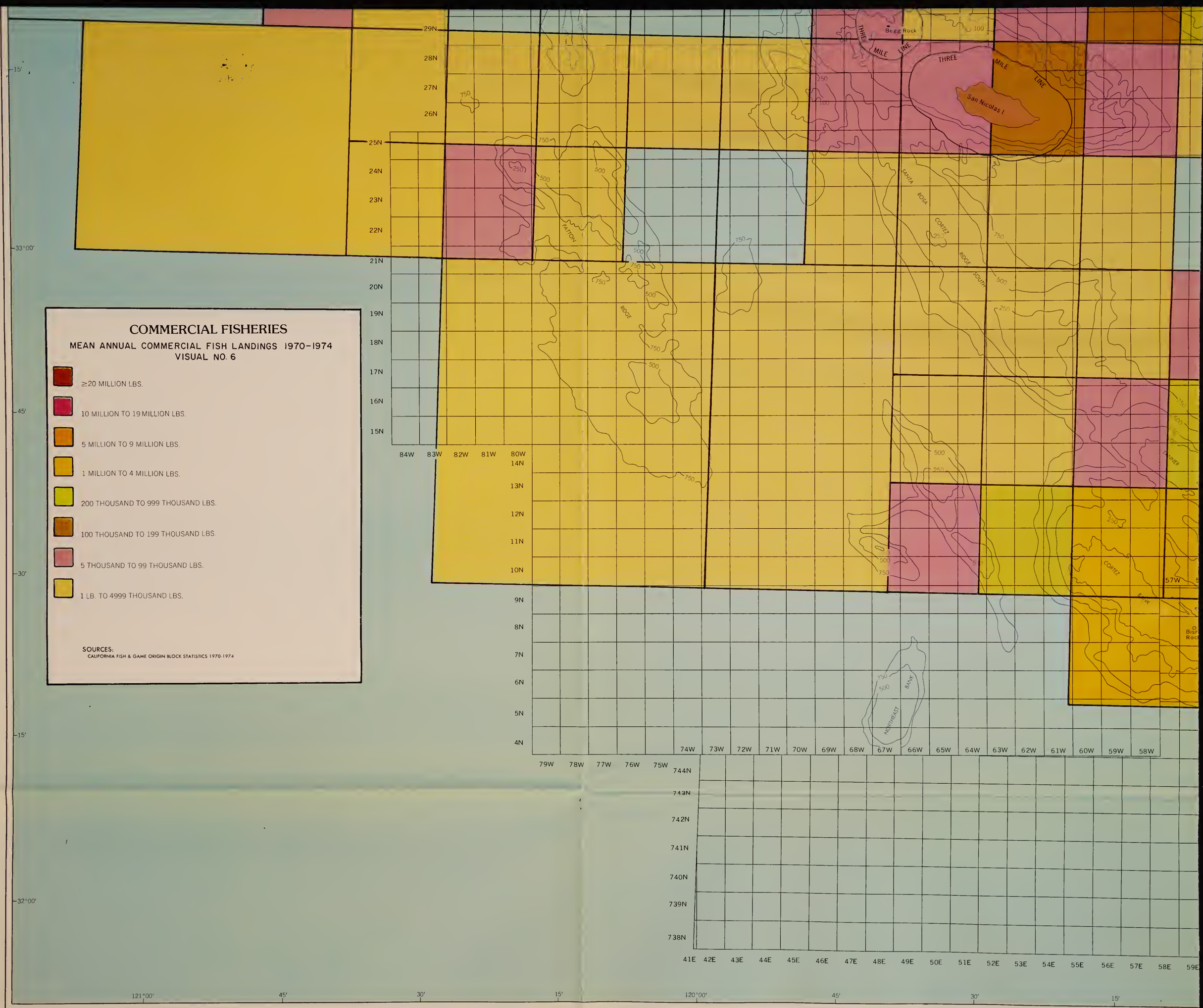
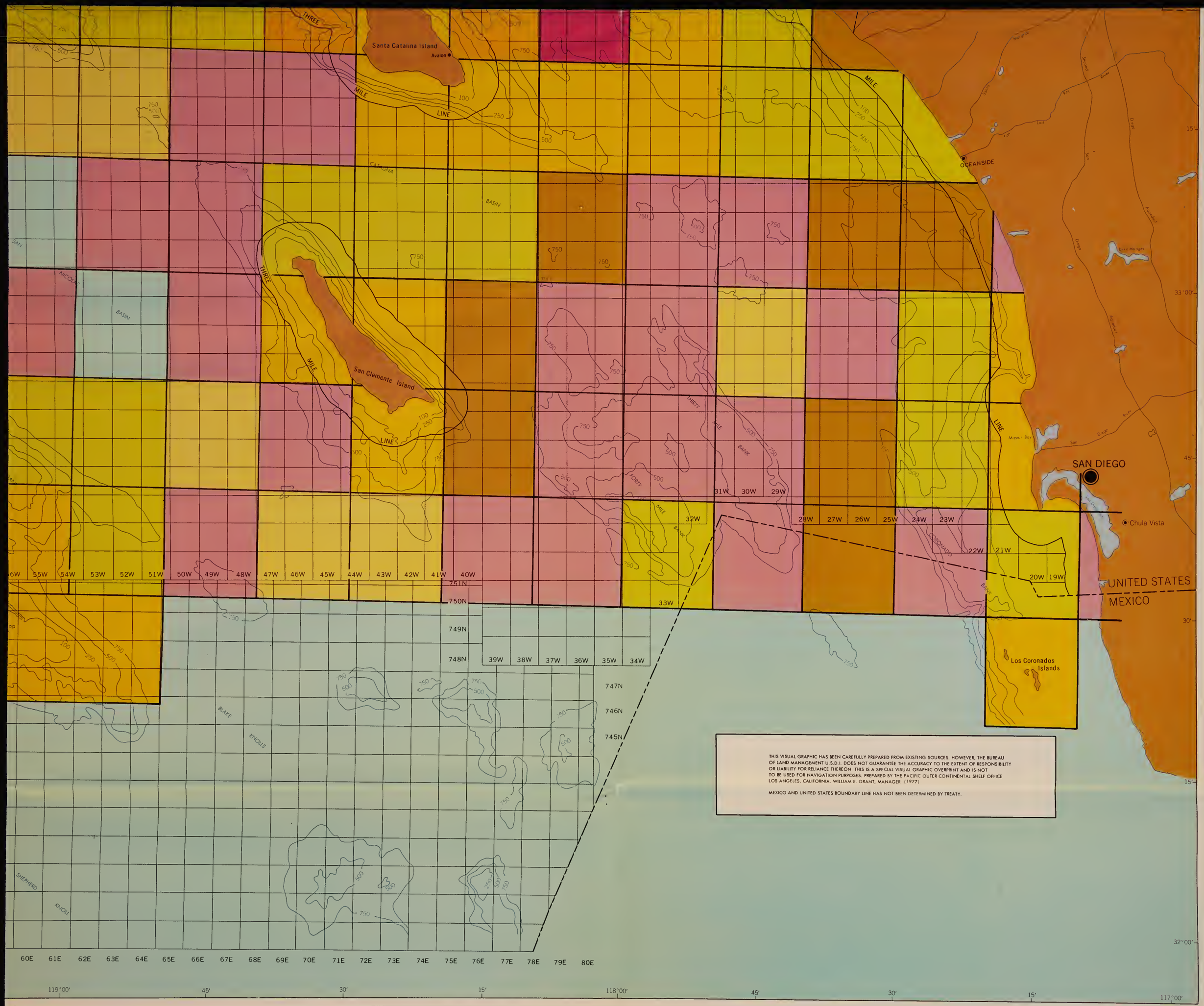
MEXICO AND UNITED STATES BOUNDARY LINE HAS NOT BEEN DETERMINED BY TREATY.


U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
Statute Miles
Kilometers
Nautical Miles
WATER DEPTH IN METERS
COMMERCIAL FISHERIES
MEAN ANNUAL COMMERCIAL FISH LANDINGS 1970-1974
VISUAL NO 6
≥20 MILLION LBS
10 MILLION TO 19 MILLION LBS
5 MILLION TO 9 MILLION LBS
1 MILLION TO 4 MILLION LBS
200 THOUSAND TO 999 THOUSAND LBS
100 THOUSAND TO 199 THOUSAND LBS
5 THOUSAND TO 99 THOUSAND LBS
1 LB TO 4999 THOUSAND LBS
SOURCES
CALIFORNIA FISH & GAME ORIGIN BLOCK STATISTICS 1970-1974
LOS ANGELES
LONG BEACH
SAN BERNARDINO
RIVERSIDE
OCEANSIDE
SAN DIEGO
UNITED STATES
MEXICO
Santa Rosa Island
Santa Cruz Island
Anacapa Island
Santa Barbara Island
Santa Catalina Island
San Nicolas I
San Clemente Island
Los Coronados Islands
Bureau of Land Management
Library
Denver Service Center

Bureau of Land Management
Library
Denver Service Center


U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers
5 0 5 10 Nautical Miles
WATER DEPTH IN METERS
119°00'
45'
30'
15'
118°00'
117°00'
34°00'
Thousand Oaks
Pt. Mugu
Malibu Beach
Pt. Dume
Santa Monica Bay
Santa Monica
LOS ANGELES
Covina
SAN BERNARDINO
RIVERSIDE
LONG BEACH
San Pedro Bay
Pt. Fermin
Newport Beach
Newport Bay
San Clemente
Santa Barbara Island
THREE MILE LINE
SANTA MONICA BASIN
750
250
100
50


COMMERCIAL FISHERIES
MEAN ANNUAL COMMERCIAL FISH LANDINGS 1970-1974
VISUAL NO. 6
≥20 MILLION LBS.
10 MILLION TO 19 MILLION LBS.
5 MILLION TO 9 MILLION LBS.
1 MILLION TO 4 MILLION LBS.
200 THOUSAND TO 999 THOUSAND LBS.
100 THOUSAND TO 199 THOUSAND LBS.
5 THOUSAND TO 99 THOUSAND LBS.
1 LB. TO 4999 THOUSAND LBS.
SOURCES:
CALIFORNIA FISH & GAME ORIGIN BLOCK STATISTICS 1970-1974
THREE MILE LINE
Begg Rock
San Nicolas I.
SANTA ROSA CORTEZ RIDGE SOUTH
PATTON RIDGE
NORTHEAST BANK
CORTEZ BANK
29N
28N
27N
26N
25N
24N
23N
22N
21N
20N
19N
18N
17N
16N
15N
14N
13N
12N
11N
10N
9N
8N
7N
6N
5N
4N
744N
743N
742N
741N
740N
739N
738N
84W
83W
82W
81W
80W
79W
78W
77W
76W
75W
74W
73W
72W
71W
70W
69W
68W
67W
66W
65W
64W
63W
62W
61W
60W
59W
58W
57W
41E
42E
43E
44E
45E
46E
47E
48E
49E
50E
51E
52E
53E
54E
55E
56E
57E
58E
59E
15'
33°00'
45'
30'
15'
32°00'
121°00'
45'
30'
15'
120°00'
45'
30'
15'


Santa Catalina Island
Avalon
THREE MILE LINE
CATALINA BASIN
SAN NICOLAS BASIN
San Clemente Island
THIRTY MILE BANK
FORTY MILE BANK
CORONADO BANK
BLAKE KNOLLS
SHEPHERD KNOLL
OCEANSIDE
SAN DIEGO
Chula Vista
Mission Bay
UNITED STATES
MEXICO
Los Coronados Islands
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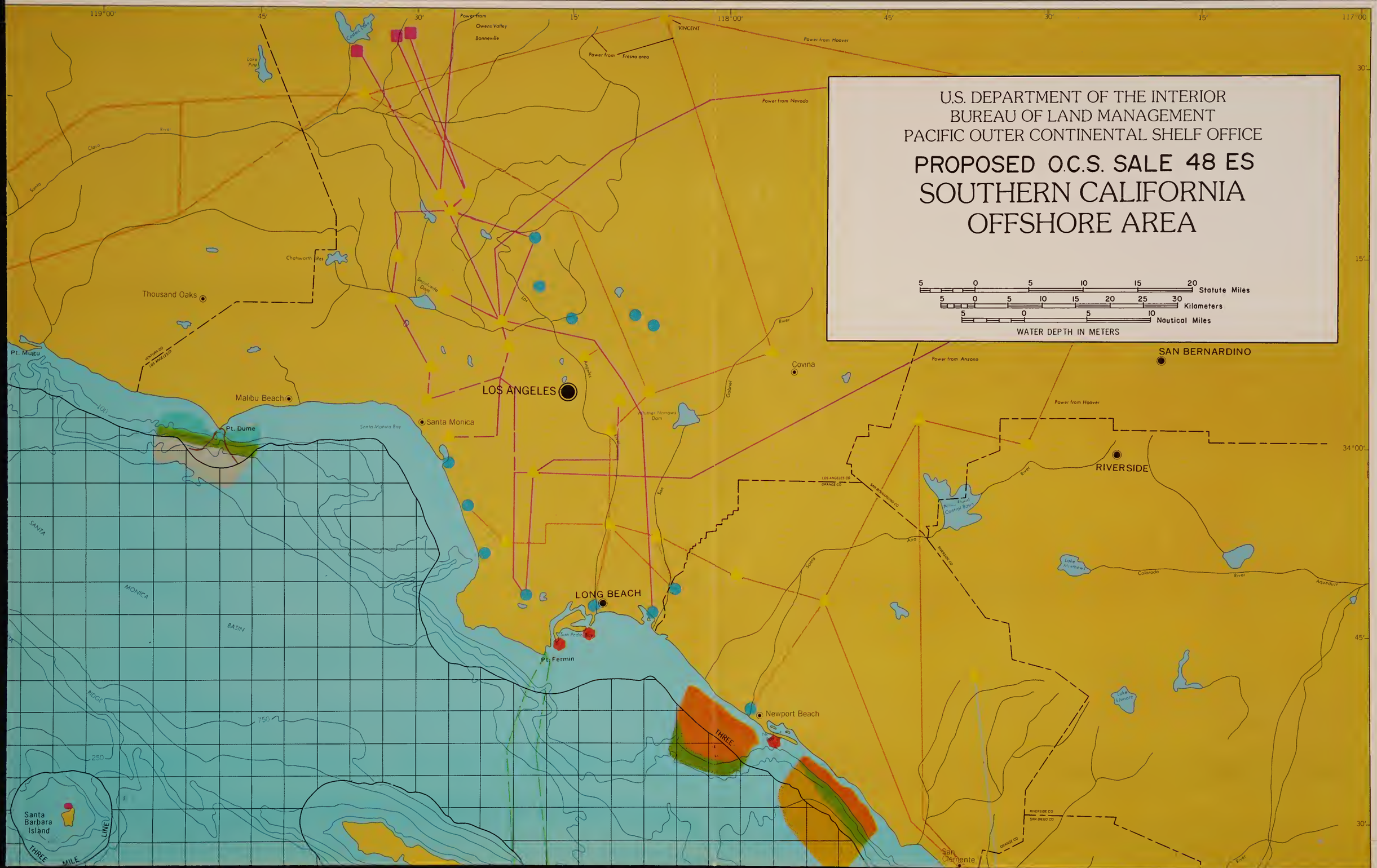
MEXICO AND UNITED STATES BOUNDARY LINE HAS NOT BEEN DETERMINED BY TREATY.
751N
750N
749N
748N
747N
746N
745N
119°00′
118°00′
117°00′
33°00′
32°00′

Bureau of Land Management
Library
Denver Service Center

POWER TRANSMISSION LINES AND BENTHOS
VISUAL NO. 7
POWER TRANSMISSION LINES (GREATER THAN 115 KILOVOLTS)
SOUTHERN CALIFORNIA EDISON CO.
LOS ANGELES CITY DEPARTMENT OF WATER & POWER
LOS ANGELES CITY DEPARTMENT OF WATER & POWER UNDERGROUND LINE
SAN DIEGO GAS & ELECTRIC CO.
GENERATING STATIONS (GREATER THAN 25 MEGAWATTS)
FUEL & NUCLEAR
HYDROELECTRIC
SUBSTATION
Pt. Conception
Goleta Pt
Santa Barbara
Pitas Pt.
Ventura
Oxnard
Richardson Rock
Wilson Rock
San Miguel I.
Santa Rosa Island
Santa Cruz Island
Anacapa Island
THREE MILE LINE
SANTA BARBARA CHANNEL
SANTA ROSA CORTEZ RIDGE
NORTH SANTA CRUZ BASIN
SANTA CRUZ CATALINA
HAMPTON'S GULCH
Lake Casitas
Ventura River
SANTA BARBARA CO
VENTURA CO
121°00'
45'
30'
15'
120°00'
34°00'
55N
54N
53N
52N
51N
50N
49N
48N
47N
46N
45N
44N
43N
42N
41N
40N
39N
38N
37N
36N
35N
34N
33N
32N
31N
30N
93W
92W
91W
90W
89W
88W
87W
86W
85W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PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers
5 0 5 10 Nautical Miles
WATER DEPTH IN METERS
119°00'
45'
30'
15'
118°00'
117°00'
34°00'
Power from Owens Valley
Bonneville
Power from Fresno area
VINCENT
Power from Hoover
Power from Nevada
Power from Anzona
Power from Hoover
Cedar Lake
Lake Piru
Santa Clara River
Chatsworth Res
Sepulveda Dam
Los Angeles River
Thousand Oaks
Pt. Mugu
VENTURA CO
LOS ANGELES CO
Malibu Beach
Pt. Dume
Santa Monica Bay
Santa Monica
LOS ANGELES
Hollywood Narrows Dam
San Gabriel River
Covina
SAN BERNARDINO
RIVERSIDE
LOS ANGELES CO
ORANGE CO
SAN BERNARDINO CO
Prado Flood Control Basin
Santa Ana River
RIVERSIDE CO
Lake Mathews
Colorado River Aqueduct
Lake Elsinore
RIVERSIDE CO
SAN DIEGO CO
ORANGE CO
LONG BEACH
San Pedro Bay
Pt. Fermin
Newport Beach
San Clemente
SANTA MONICA BASIN
RIDGE
100
750
250
THREE MILE LINE
Santa Barbara Island

TELEPHONE SUBMARINE CABLE

Seoports

Shallow water shelf fauna characterized by Amphiodia urtica, Lumbrineris sp., Euphilomedes carcharondonta, Euphilomedes producta, Parvilucina tenuisculpta.

Slope fauna characterized by Allocentrotus fragilis, Pectinaria californiensis, Maldane sarsi, Aplacophora spp., Paraprionospio pinnata.

Deep water fauna characterized by Myxoderma platyacanthum, Mitrella permodesta, Mysella compressa, Tindaria californica, Maldane spp.

Deep water fauna characterized by Myxoderma platyacanthum, Ophiomusium jolliensis, Mitrella permodesta, Mysella compressa, Tomburchus redondoensis.

Shallow water shelf fauna characterized by Amphiodia urtica, Euphilomedes producta, Axinopsida serricata.

Shallow water shelf fauna characterized by Amphiodia urtica, Euphilomedes producta, Byblis veleronis, Lumbrineris sp.

Shallow water fauna characterized by Micranellum crebricinctum, Euphilomedes producta, Byblis veleronis, Lumbrineris sp., Amphissa undata, Alvinia rosana.

Intermediate water fauna characterized by Parvilucina tenuisculpta, Amphiodia urtica.

Deep water fauna characterized by Amphiodia urtica, Parvilucina tenuisculpta, Tellina carpenteri.

Shallow water (234 M) characterized by Amphipholis squamata, Amphipholis pugetana, Aoroides columbiae.

Intermediate & slope fauna characterized by Byblis tannerensis, Ampelisca macracephala, Spiochaetopterus costarum, Tomburchus redondoensis.

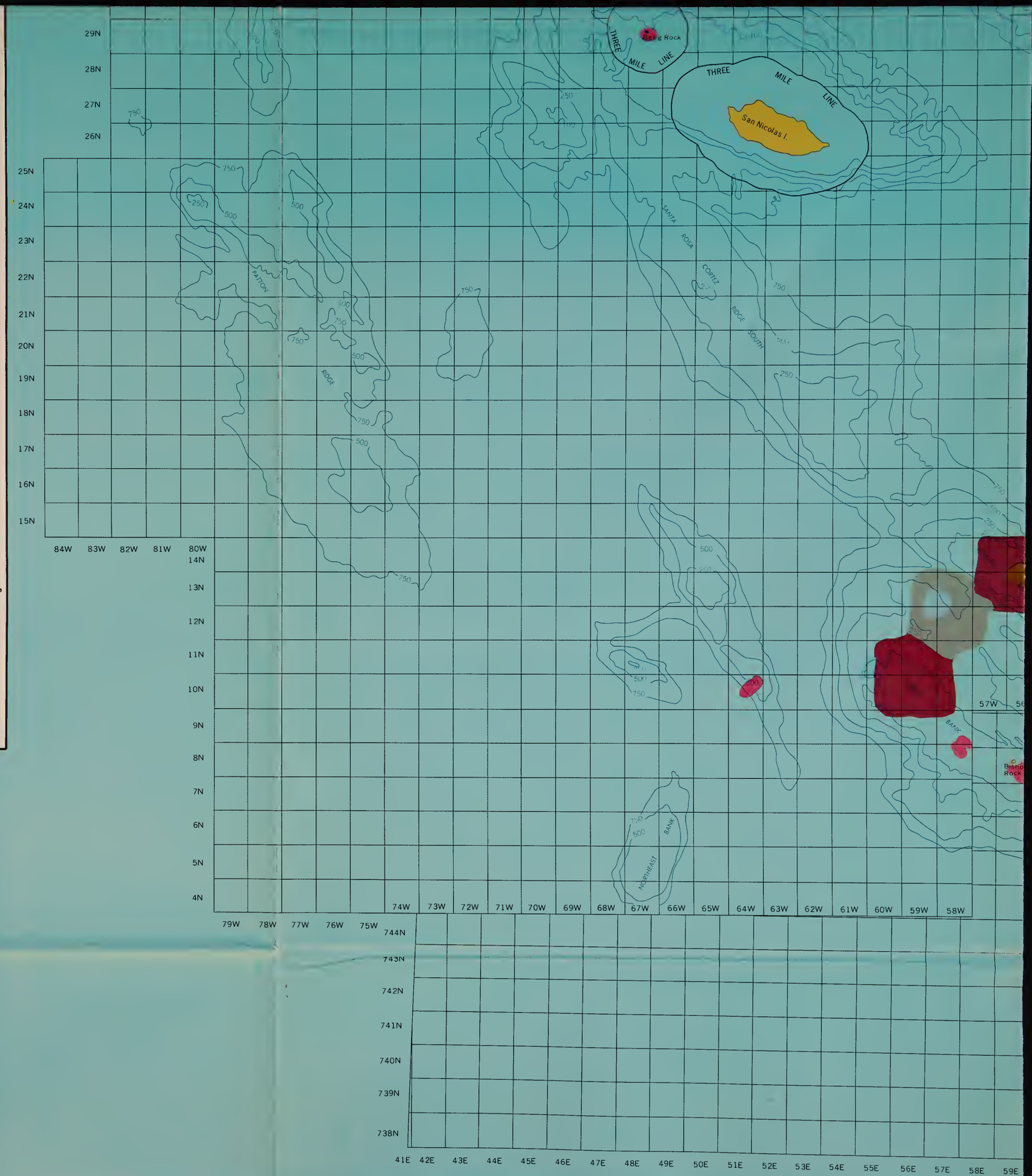
Basin fauna characterized by Ophiura leptoctenia, Tindaria kennerlyi, Rhodine bitorquata.

Allopora areas.

Bank trough characterized by Amphiodia urtica, Chloeia pinnata, Prionospio malmgreni.

Bank top characterized by Clythrocerus planus, Ampelisca cristata, Chloeia pinnata, Macronellum.

SOURCES:
WELDAY & WILLIAMS (1975), JONES & FAUCHALD (1977)



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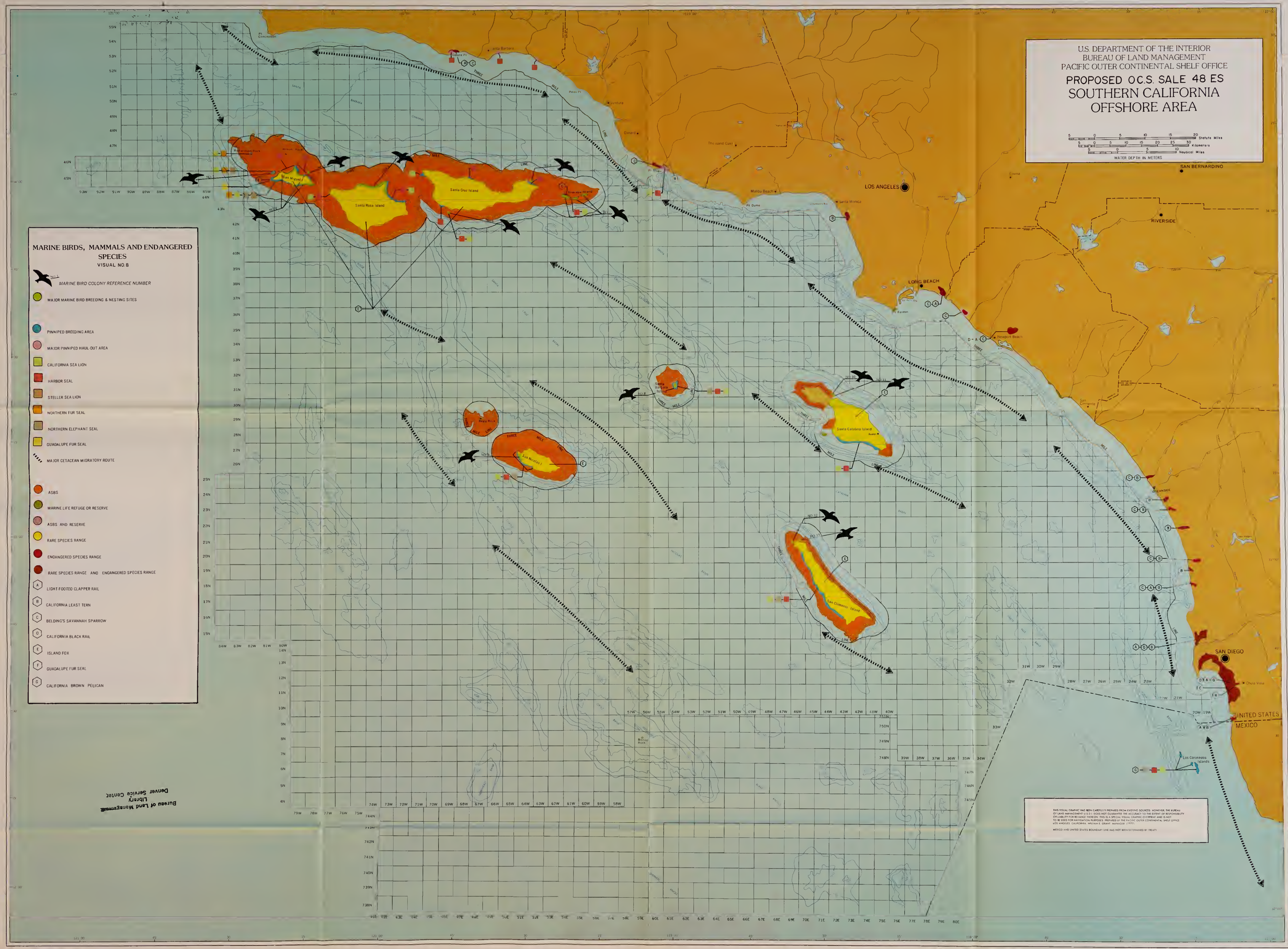

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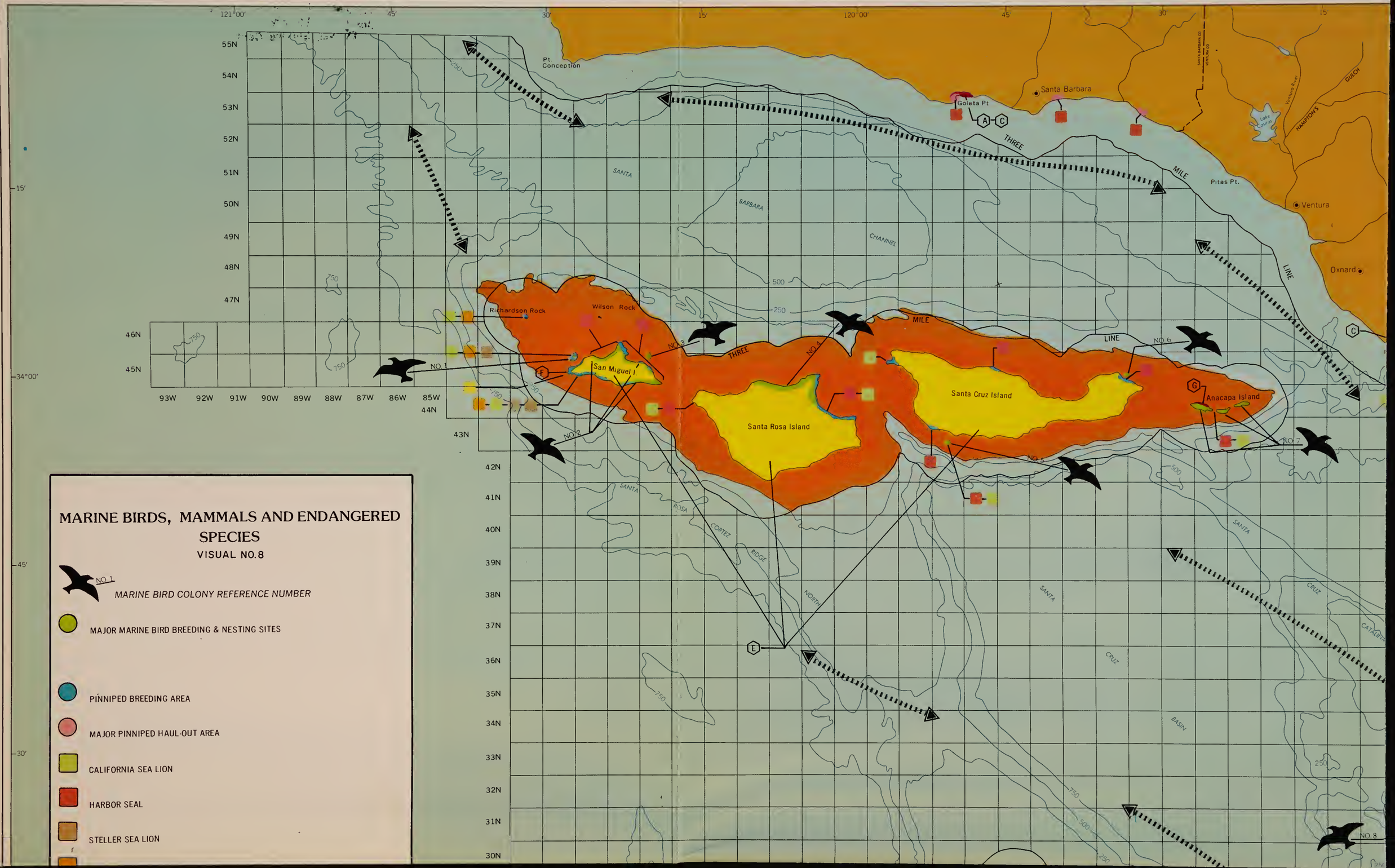
Denver Service Center


MARINE BIRDS, MAMMALS AND ENDANGERED SPECIES
VISUAL NO. 8
NO. 1
MARINE BIRD COLONY REFERENCE NUMBER
MAJOR MARINE BIRD BREEDING & NESTING SITES
PINNIPED BREEDING AREA
MAJOR PINNIPED HAUL-OUT AREA
CALIFORNIA SEA LION
HARBOR SEAL
STELLER SEA LION
Pt Conception
Santa Barbara
Goleta Pt
Pitas Pt.
Ventura
Oxnard
Richardson Rock
Wilson Rock
San Miguel I.
Santa Rosa Island
Santa Cruz Island
Anacapa Island
THREE MILE LINE
SANTA BARBARA CHANNEL
SANTA ROSA CORTEZ RIDGE
NORTH SANTA CRUZ BASIN
SANTA CRUZ CATALINA
HAMPTON'S GULCH
Lake Casitas
Ventura River
SANTA BARBARA CO
VENTURA CO
121°00'
120°00'
34°00'
93W
92W
91W
90W
89W
88W
87W
86W
85W
55N
54N
53N
52N
51N
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30N

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OFFSHORE AREA
5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers
5 0 5 10 Nautical Miles
WATER DEPTH IN METERS
119°00'
45'
30'
15'
118°00'
117°00'
34°00'
Thousand Oaks
Malibu Beach
Pt. Dume
Santa Monica
Santa Monica Bay
LOS ANGELES
LONG BEACH
San Pedro Bay
Pt. Fermin
Newport Beach
Covina
SAN BERNARDINO
RIVERSIDE
San Clemente
Santa Barbara Island
SANTA MONICA BASIN
RIDGE
THREE MILE LINE
NO. 10
NO. 11
D - A
Lake Matthews
Lake Elsinore
Prado Flood Control Basin
Whittier Narrows Dam
Chatsworth Res
Santa Clara River
Los Angeles River
San Gabriel River
Santa Ana River
Colorado River Aqueduct
Lake Piru
Castaic Lake
Sepulveda Dam
Santa Monica Bay
Ventura Co
Los Angeles Co
Orange Co
San Bernardino Co
Riverside Co
San Diego Co
100
750
250

NORTHERN FUR SEAL

NORTHERN ELEPHANT SEAL

GUADALUPE FUR SEAL

MAJOR CETACEAN MIGRATORY ROUTE

ASBS

MARINE LIFE REFUGE OR RESERVE

ASBS AND RESERVE

RARE SPECIES RANGE

ENDANGERED SPECIES RANGE

RARE SPECIES RANGE AND ENDANGERED SPECIES RANGE

A LIGHT-FOOTED CLAPPER RAIL

B CALIFORNIA LEAST TERN

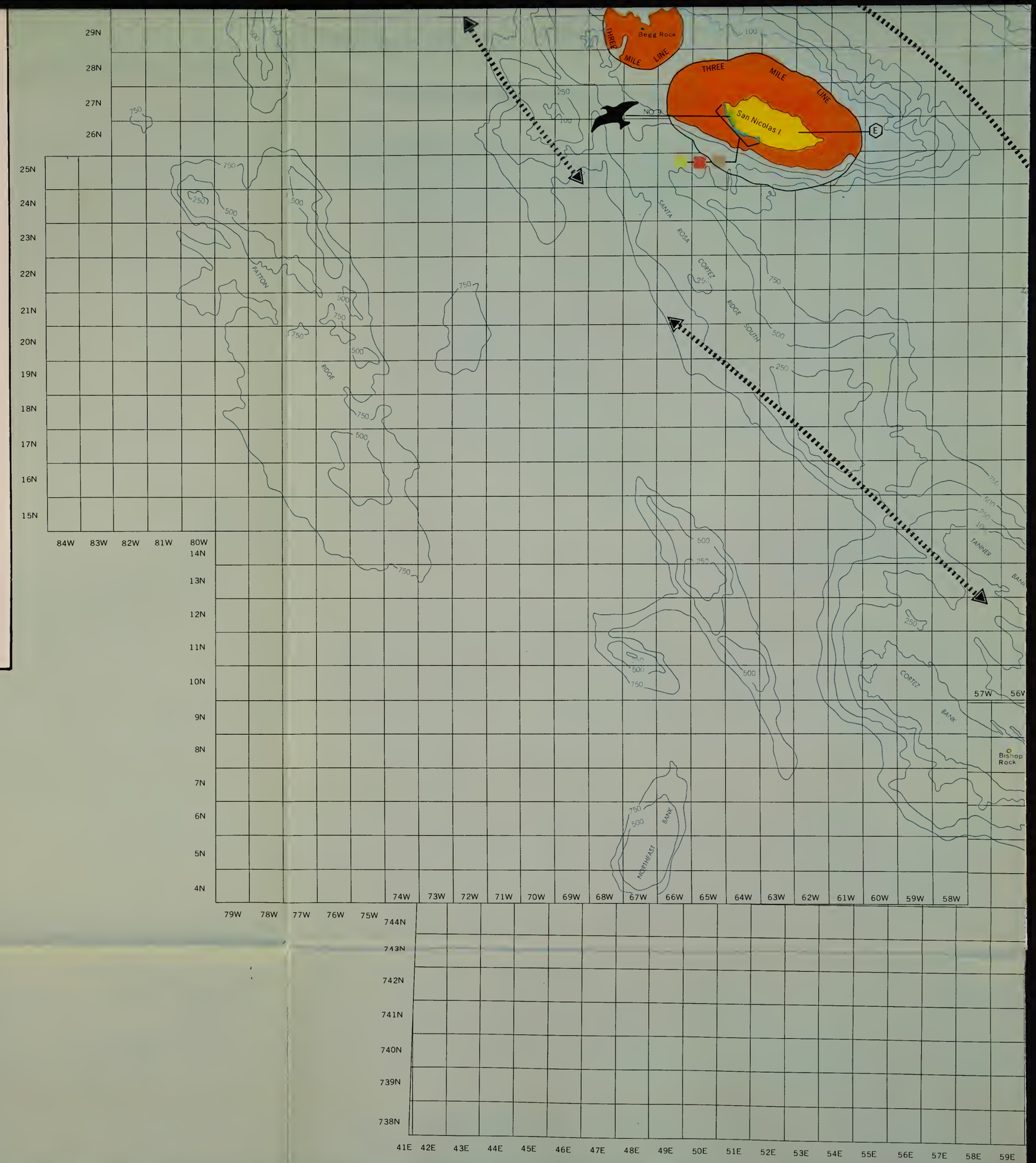
C BELDING'S SAVANNAH SPARROW

D CALIFORNIA BLACK RAIL

E ISLAND FOX

F GUADALUPE FUR SEAL

G CALIFORNIA BROWN PELICAN



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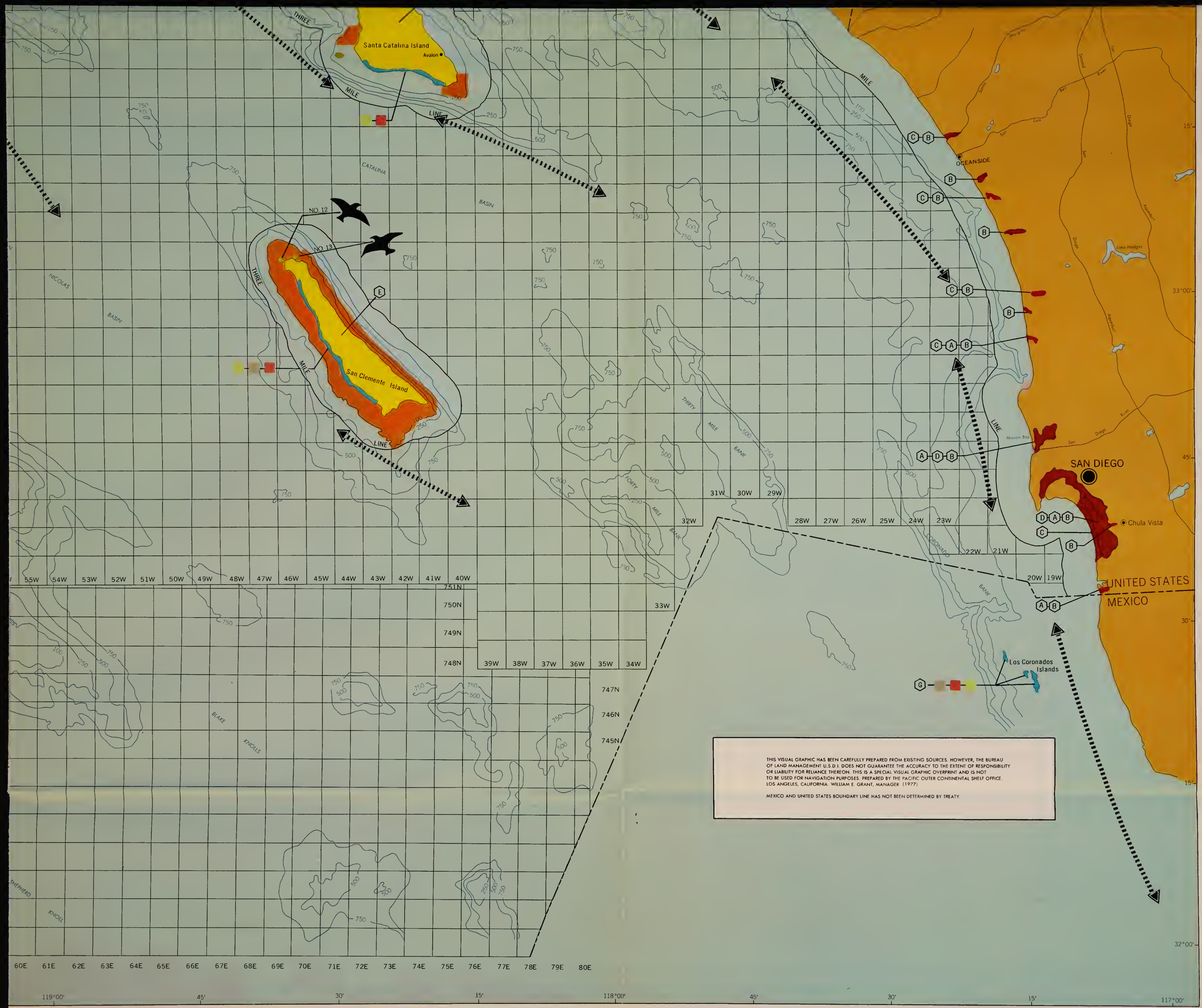
Santa Catalina Island
Avalon
THREE MILE LINE
CATALINA BASIN
NICOLAS BASIN
NO. 12
NO. 13
San Clemente Island
OCEANSIDE
SAN DIEGO
Chula Vista
Mission Bay
Lake Hodges
THIRTY MILE BANK
FORTY MILE BANK
CORONADO BANK
UNITED STATES
MEXICO
Los Coronados Islands
BLAKE KNOLLS
SHEPHERD KNOLL
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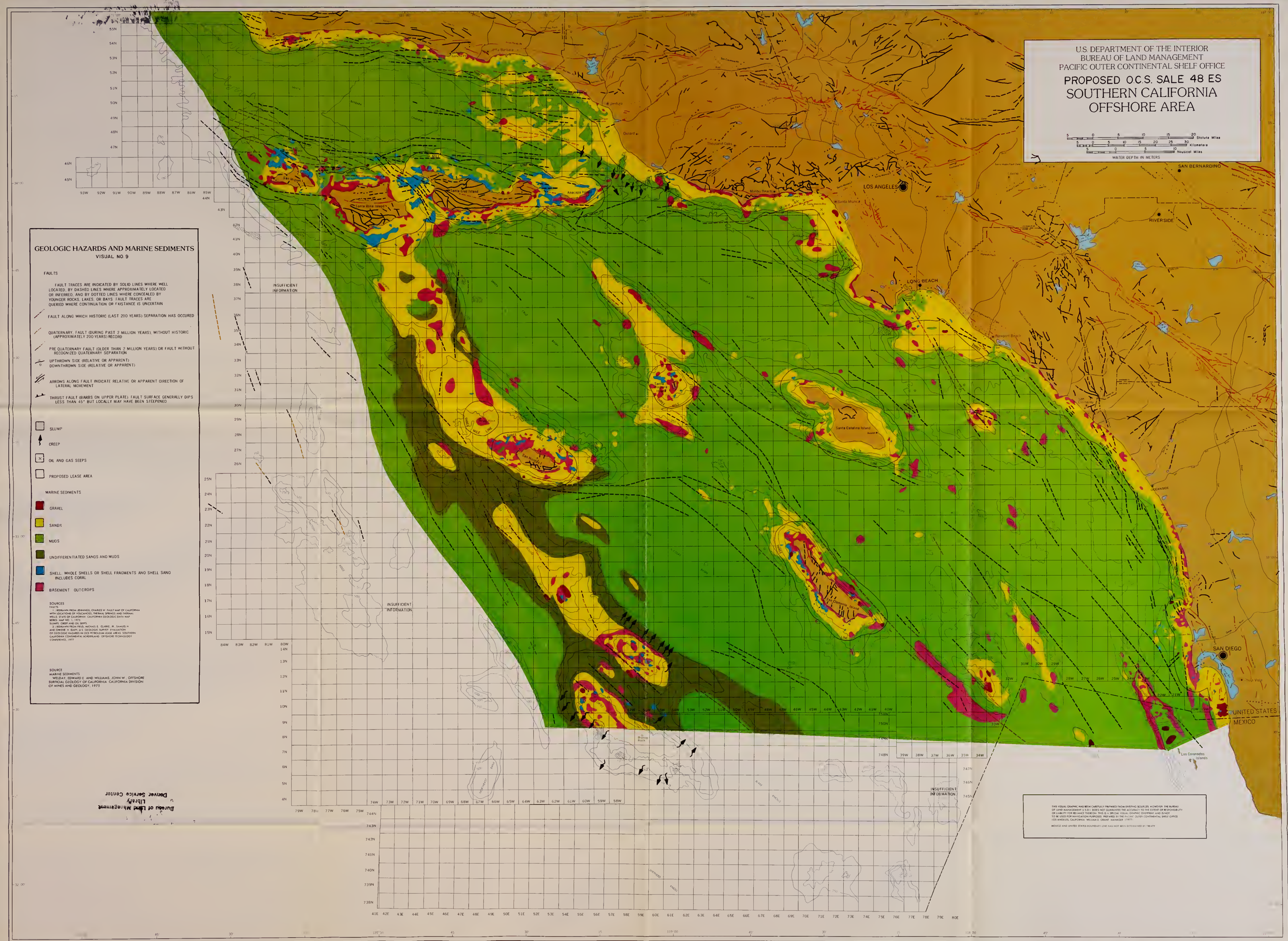
119°00′ 45′ 30′ 15′ 118°00′ 45′ 30′ 15′ 117°00′
33°00′ 45′ 30′ 15′ 32°00′


U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE
PROPOSED O.C.S. SALE 48 ES
SOUTHERN CALIFORNIA
OFFSHORE AREA
Statute Miles
Kilometers
Nautical Miles
WATER DEPTH IN METERS
GEOLOGIC HAZARDS AND MARINE SEDIMENTS
VISUAL NO. 9
FAULTS
FAULT TRACES ARE INDICATED BY SOLID LINES WHERE WELL LOCATED, BY DASHED LINES WHERE APPROXIMATELY LOCATED OR INFERRED, AND BY DOTTED LINES WHERE CONCEALED BY YOUNGER ROCKS, LAKES, OR BAYS. FAULT TRACES ARE QUERIED WHERE CONTINUATION OR EXISTANCE IS UNCERTAIN.
FAULT ALONG WHICH HISTORIC (LAST 200 YEARS) SEPARATION HAS OCCURED
QUATERNARY FAULT (DURING PAST 2 MILLION YEARS), WITHOUT HISTORIC (APPROXIMATELY 200 YEARS) RECORD
PRE QUATERNARY FAULT (OLDER THAN 2 MILLION YEARS) OR FAULT WITHOUT RECOGNIZED QUATERNARY SEPARATION
UPTHROWN SIDE (RELATIVE OR APPARENT)
DOWNTHROWN SIDE (RELATIVE OR APPARENT)
ARROWS ALONG FAULT INDICATE RELATIVE OR APPARENT DIRECTION OF LATERAL MOVEMENT
THRUST FAULT (BARBS ON UPPER PLATE) FAULT SURFACE GENERALLY DIPS LESS THAN 45° BUT LOCALLY MAY HAVE BEEN STEEPENED
SLUMP
CREEP
OIL AND GAS SEEPS
PROPOSED LEASE AREA
MARINE SEDIMENTS
GRAVEL
SANDS
MUDS
UNDIFFERENTIATED SANDS AND MUDS
SHELL, WHOLE SHELLS OR SHELL FRAGMENTS AND SHELL SAND INCLUDES CORAL
BASEMENT OUTCROPS
SOURCES
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INSUFFICIENT INFORMATION
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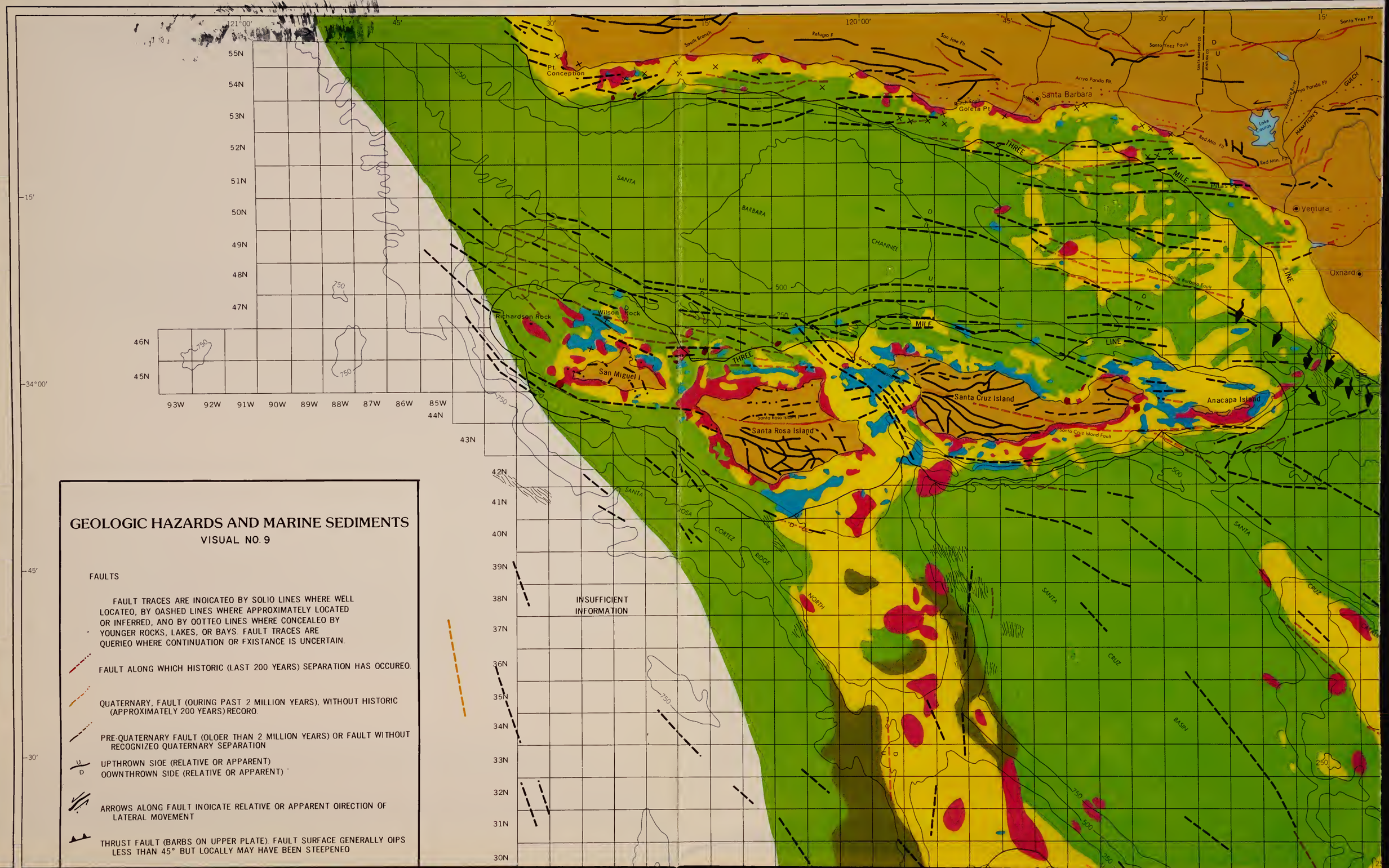
San Clemente Island
Los Coronados Islands
Bishop Rock
Oxnard
Ventura
Santa Barbara
Malibu Beach
Newport Beach
Oceanside
Thousand Oaks
Santa Monica
Pt. Fermin
Pt. Dume
Pt. Sal
Pt. Arguello
Pt. Conception
Lake Havasu
Lake Mead
Lake Mohave
Lake Elsinore
Lake Perris
Salton Sea
Imperial Dam
Parker Dam
Hoover Dam
Palo Verde Dam
Mt. Pinos
Mt. San Antonio
Mt. San Jacinto
Mt. Baldy
Mt. Wilson
Mt. Pacifico
Mt. Laguna
Mt. Cuyamaca
Mt. Palomar
Mt. Gleason
Mt. Lowe



GEOLOGIC HAZARDS AND MARINE SEDIMENTS

VISUAL NO. 9

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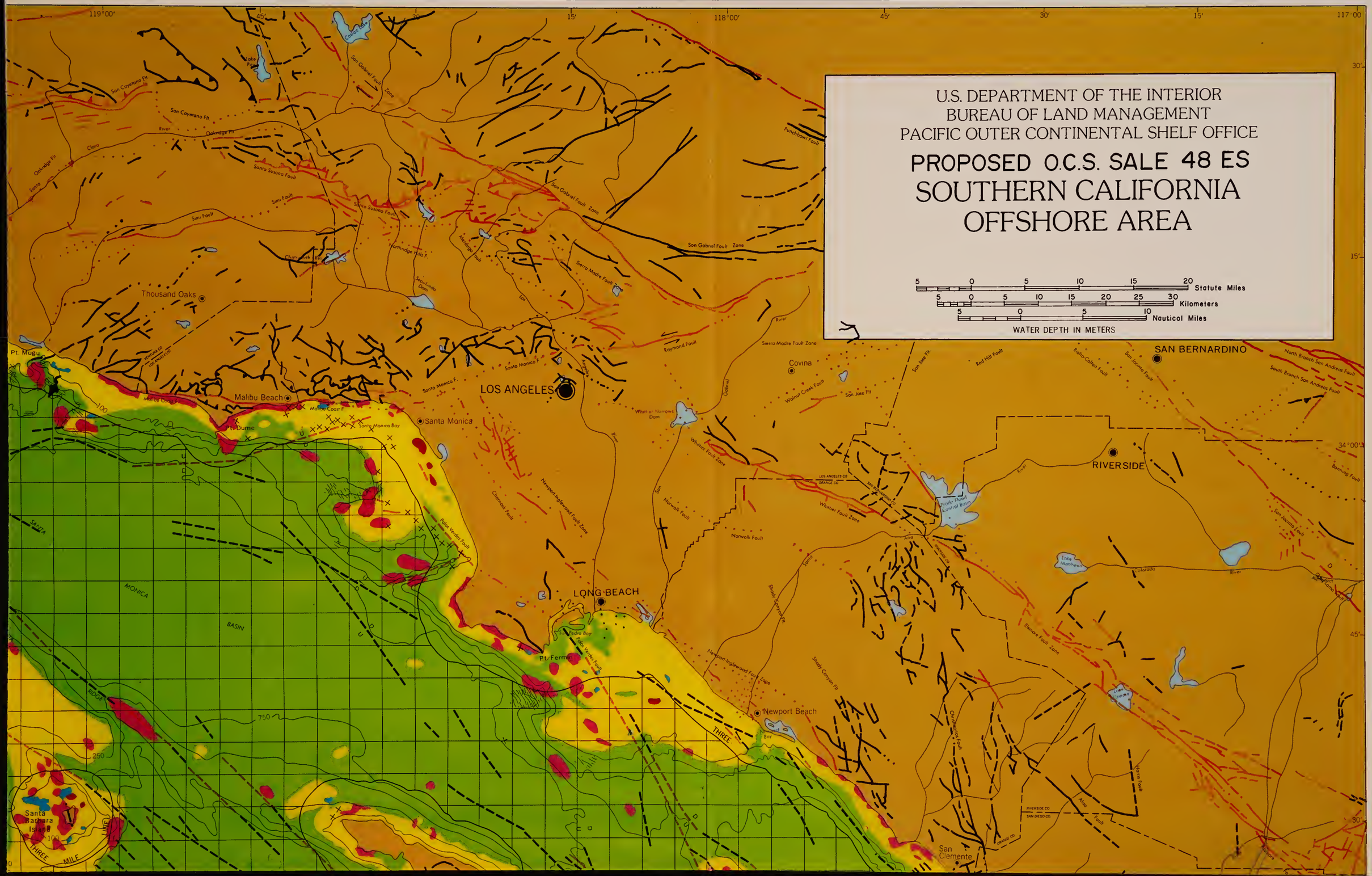
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Covina
San Clemente
Santa Barbara Island
SANTA MONICA BASIN
THREE MILE LINE
Santa Monica Bay
San Pedro Bay
Newport Bay
Lake Mathews
Prado Flood Control Basin
San Gabriel Fault Zone
Sierra Madre Fault Zone
Raymond Fault
Whittier Fault Zone
Whittier Narrows Dam
Newport-Inglewood Fault Zone
Palos Verdes Fault
Santa Susana Fault
Simi Fault
Malibu Coast F
Elsinore Fault Zone
San Jacinto Fault
Banning Fault
Red Hill Fault
Rodeo-Colton Fault
North Branch San Andreas Fault
South Branch San Andreas Fault
Chino Fault
Norwalk Fault
Shady Canyon Fault
Cristianitos Fault
Aliso Fault
Kons Fault
Raymond Fault
Walnut Creek Fault
San Jose Flt.
Punchbowl Fault
Clamshell Fault
Sierra Madre Fault Zone
Santa Clara River
Colorado River
Santa Ana River
Santa Ana River
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Santa Clara

SLUMP

CREEP

OIL AND GAS SEEPS

PROPOSED LEASE AREA

MARINE SEDIMENTS

GRAVEL

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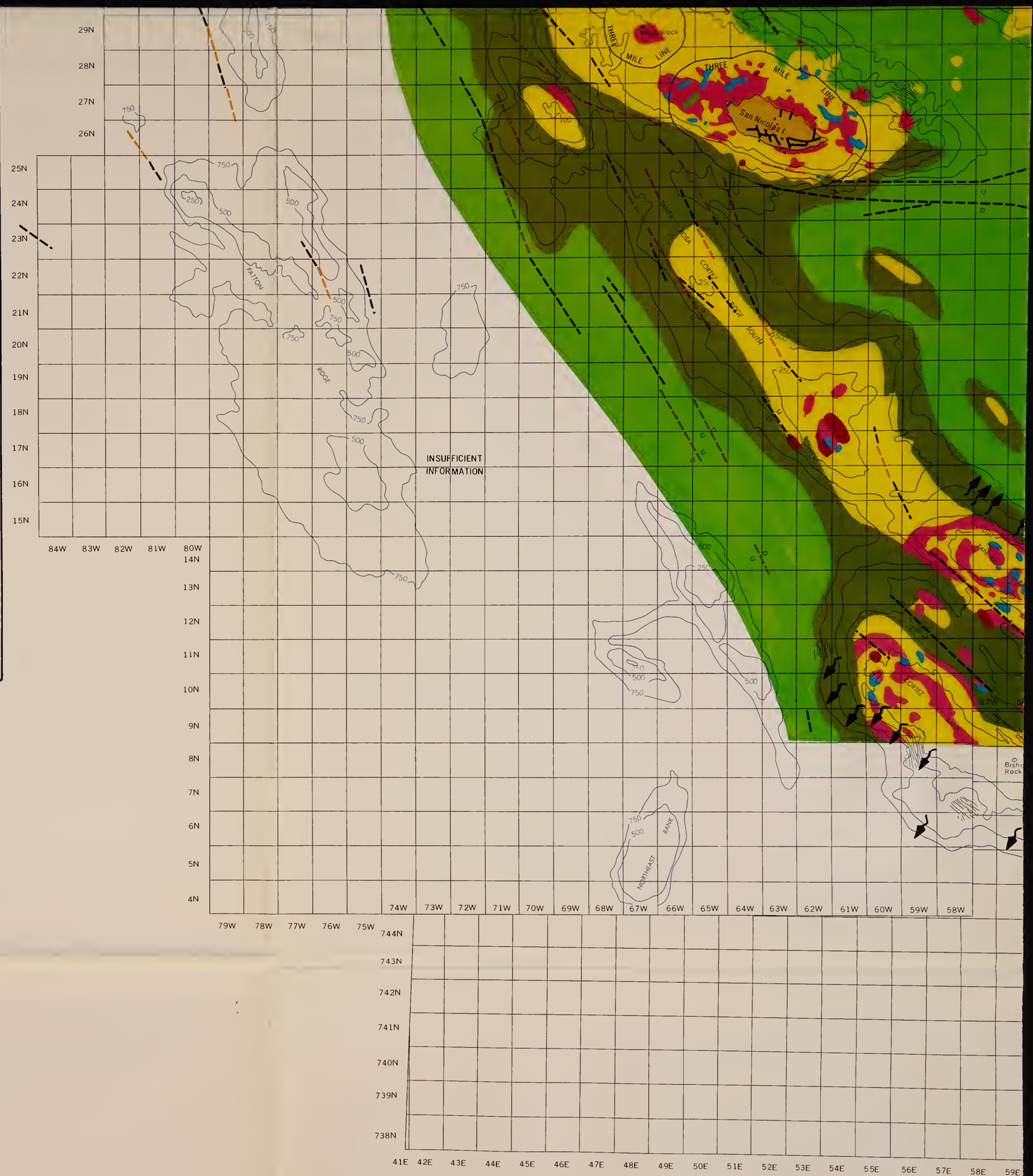

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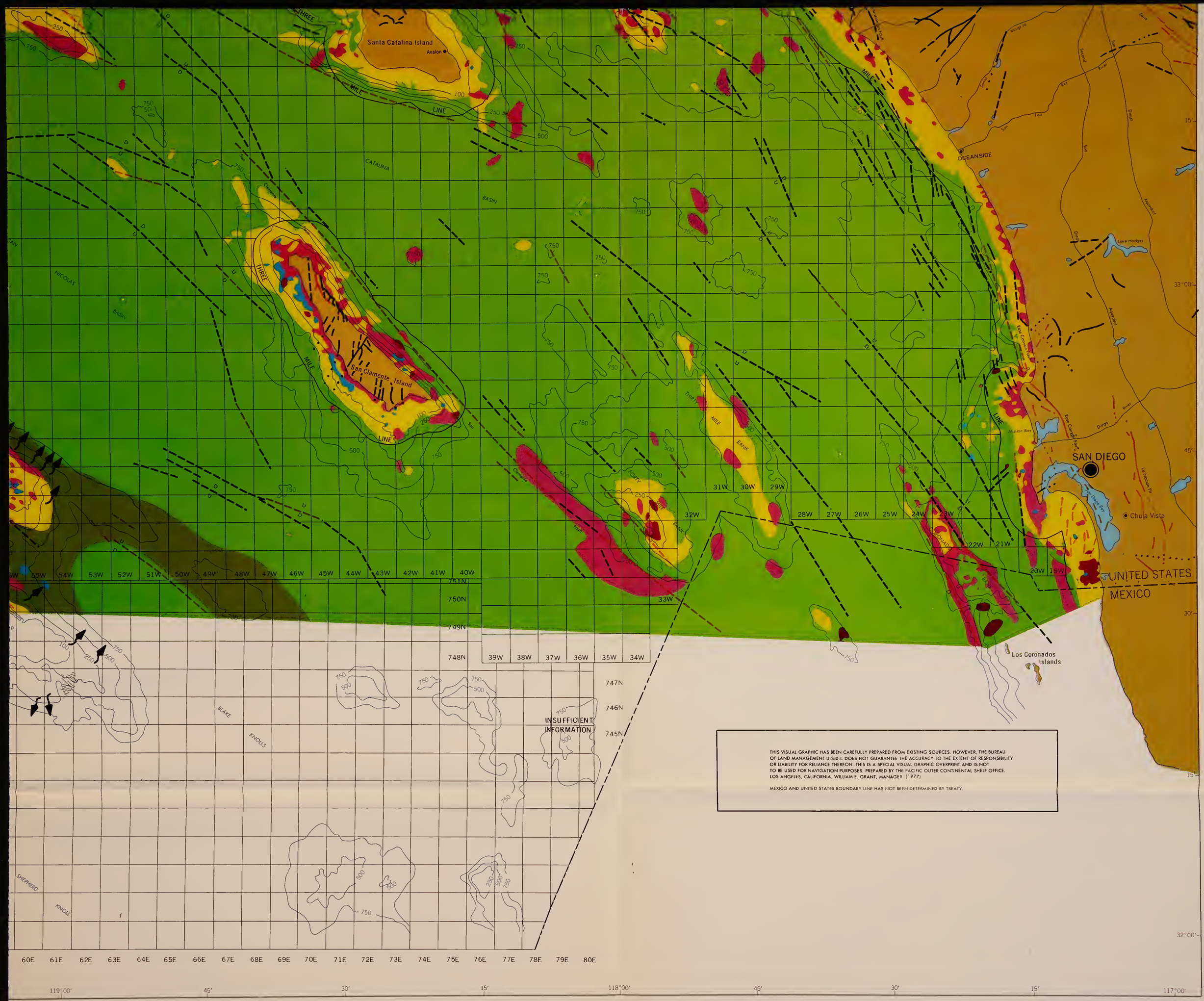
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INSUFFICIENT INFORMATION
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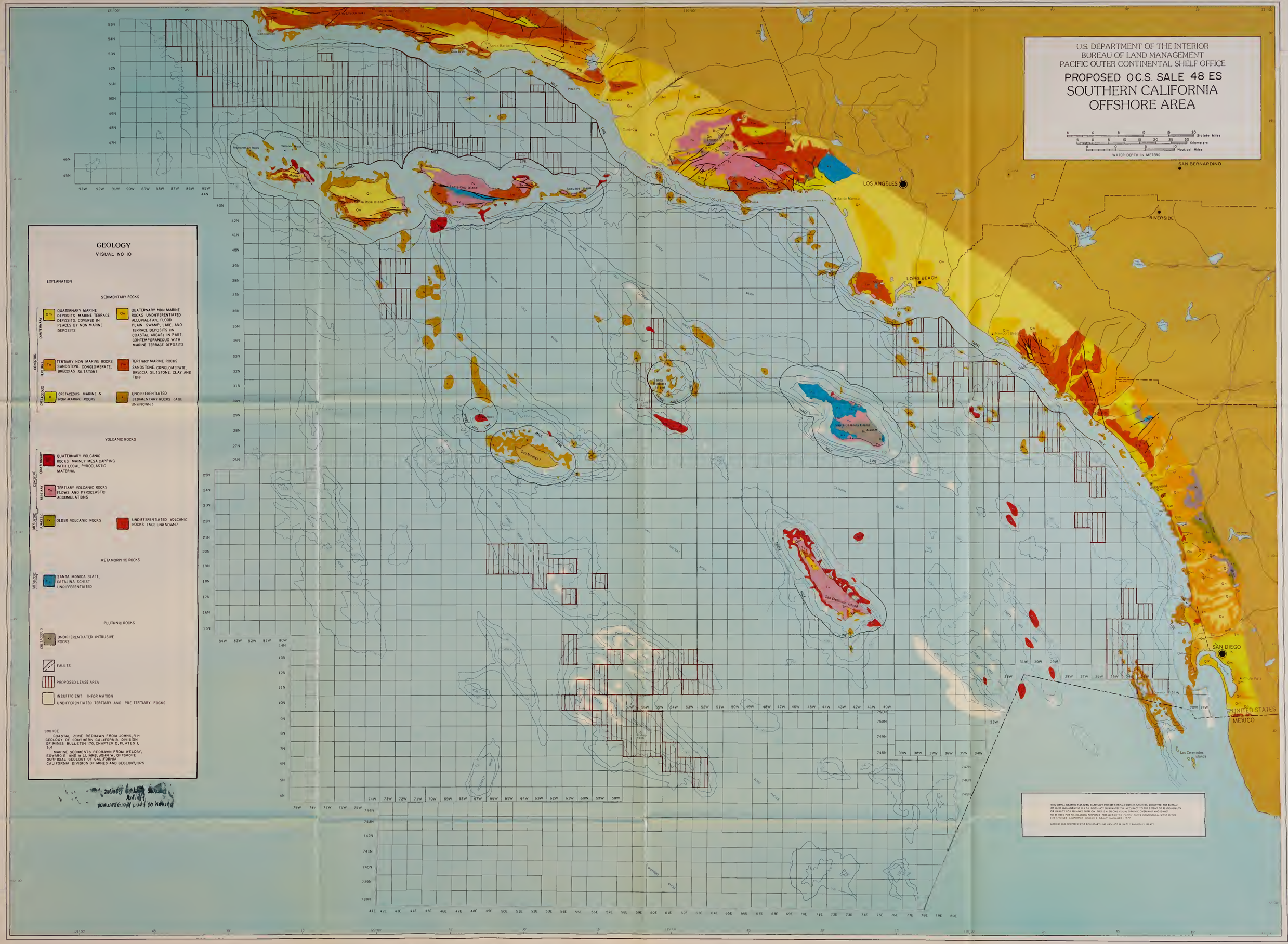
Rose Canyon Fault
Mission Bay
San Diego Bay
San Diego River
Lake Hodges
Escondido Fault
Margarita Fault
Second River
Las Posas Fault
Aliso Creek
San Juan Creek
Santa Ana River
Aliso Creek
Aliso Creek
Aliso Creek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VISUAL NO 10
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Qm QUATERNARY MARINE DEPOSITS MARINE TERRACE DEPOSITS, COVERED IN PLACES BY NON MARINE DEPOSITS
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CENOZOIC
TERTIARY
Tn TERTIARY NON MARINE ROCKS SANDSTONE CONGLOMERATE, BRECCIAS SILTSTONE
Tm TERTIARY MARINE ROCKS SANDSTONE, CONGLOMERATE, BRECCIA SILTSTONE, CLAY AND TUFF
CRETACEOUS
K CRETACEOUS MARINE & NON MARINE ROCKS
K UNDIFFERENTIATED SEDIMENTARY ROCKS (AGE UNKNOWN)
VOLCANIC ROCKS
CENOZOIC
QUATERNARY
QUATERNARY VOLCANIC ROCKS MAINLY MESA CAPPING WITH LOCAL PYROCLASTIC MATERIAL
TERTIARY
Tv TERTIARY VOLCANIC ROCKS FLOWS AND PYROCLASTIC ACCUMULATIONS
MESOZOIC
JURASSIC
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METAMORPHIC ROCKS
MESOZOIC
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FAULTS
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Santa Rosa Island
Anacapa Island
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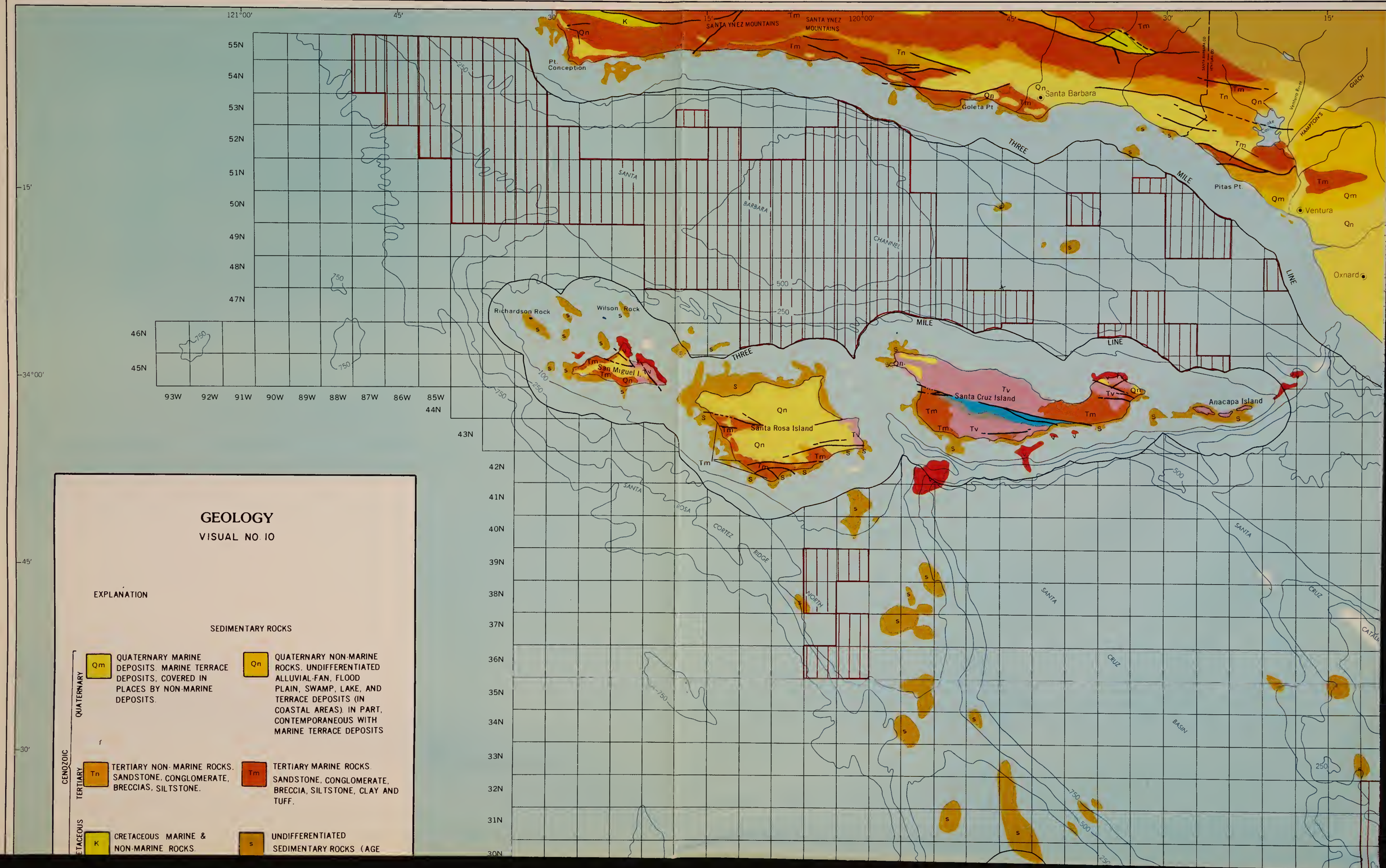
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SANTA YNEZ MOUNTAINS
Pt. Conception
Goleta Pt
Santa Barbara
Pitas Pt.
Ventura
Oxnard
Richardson Rock
Wilson Rock
San Miguel I.
Santa Rosa Island
Santa Cruz Island
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SANTA BARBARA CHANNEL
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SANTA ROSA CORTEZ RIDGE
NORTH
SANTA CRUZ BASIN
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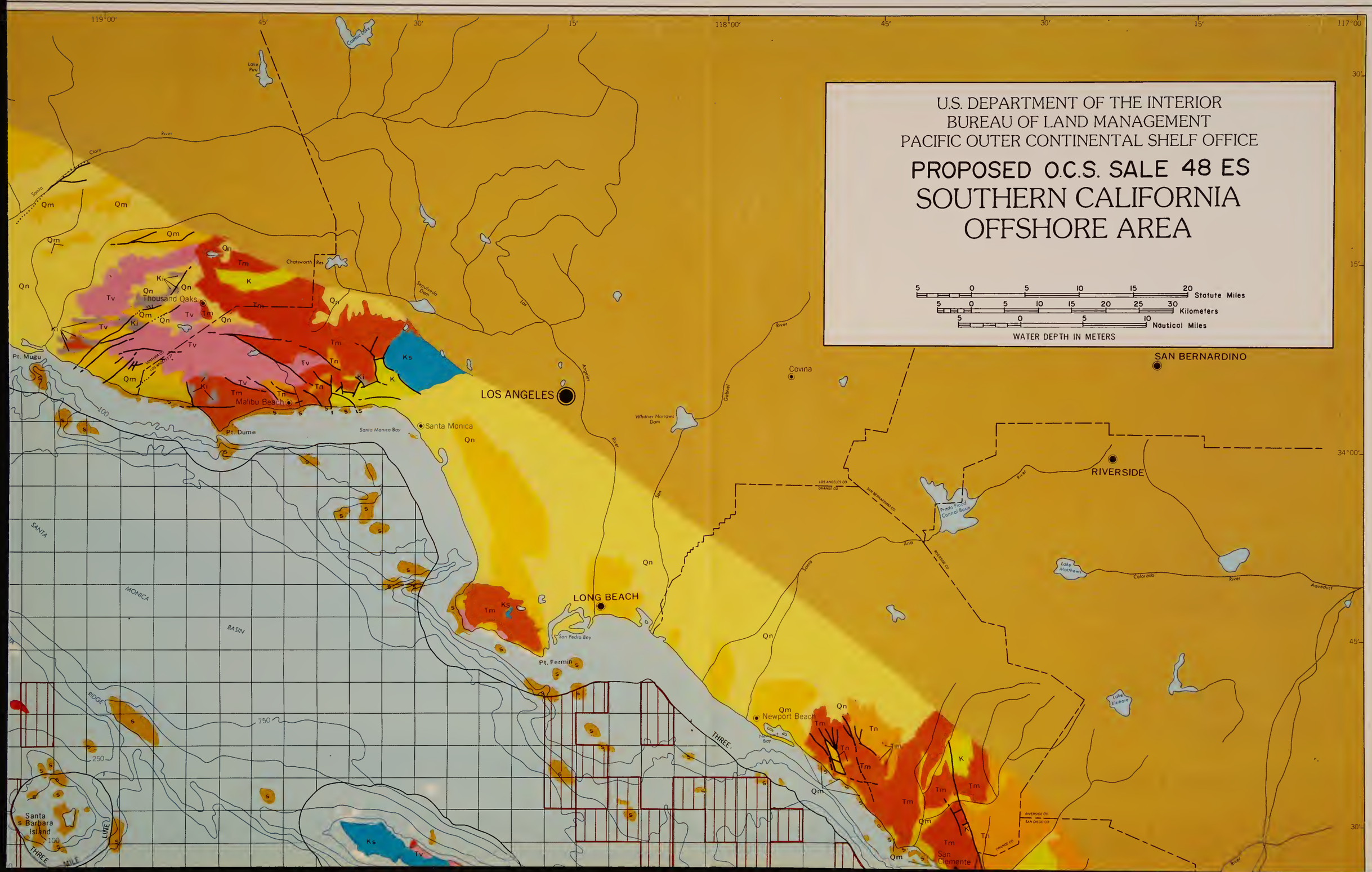
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Lake Elsinore
Colorado River Aqueduct
SANTA MONICA BASIN
RIDGE
THREE MILE LINE
750
250
100
Qm
Qn
Tv
Tm
Tn
K
Ks
Ki

UNKNOWN)

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MESOZOIC

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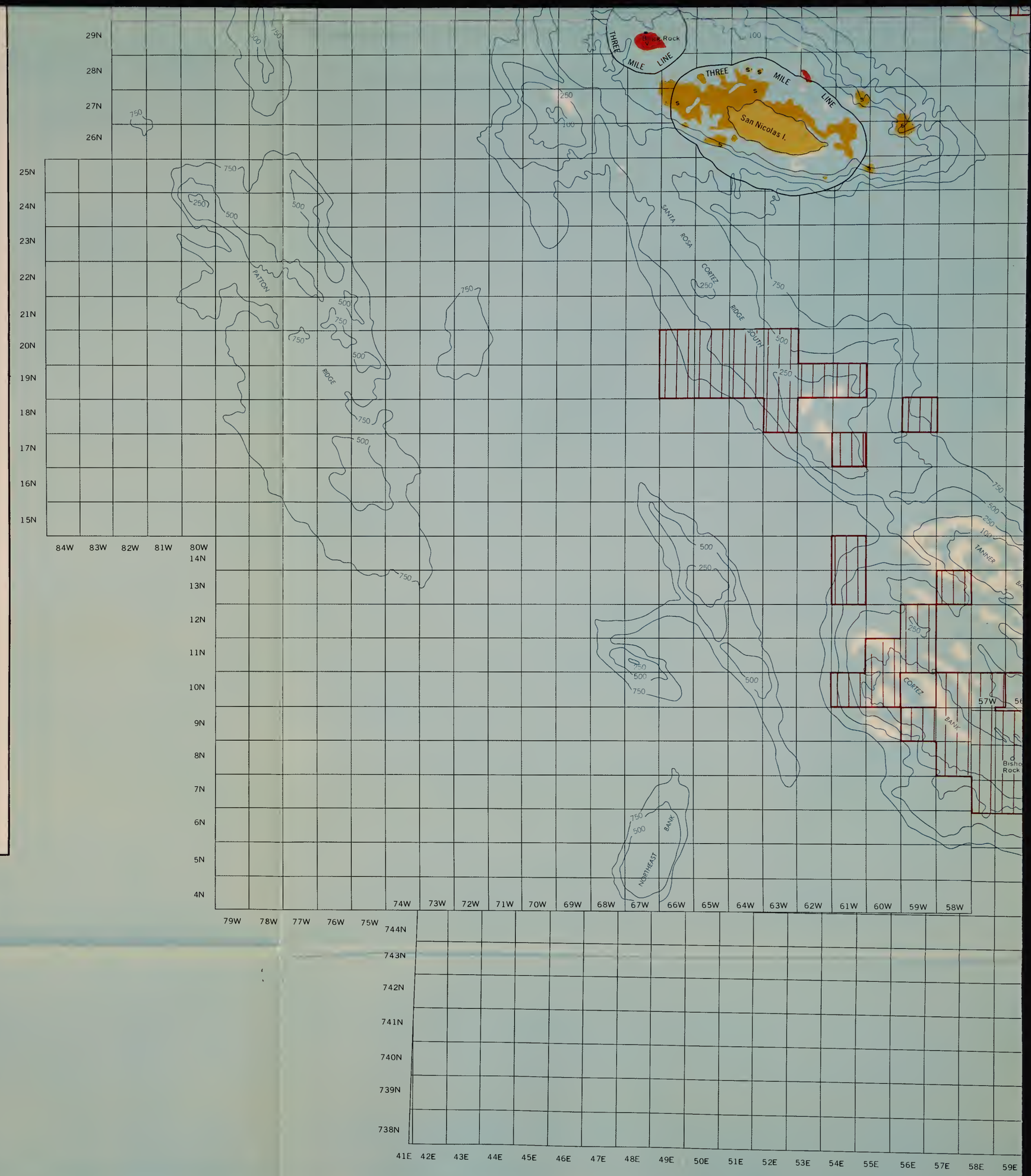

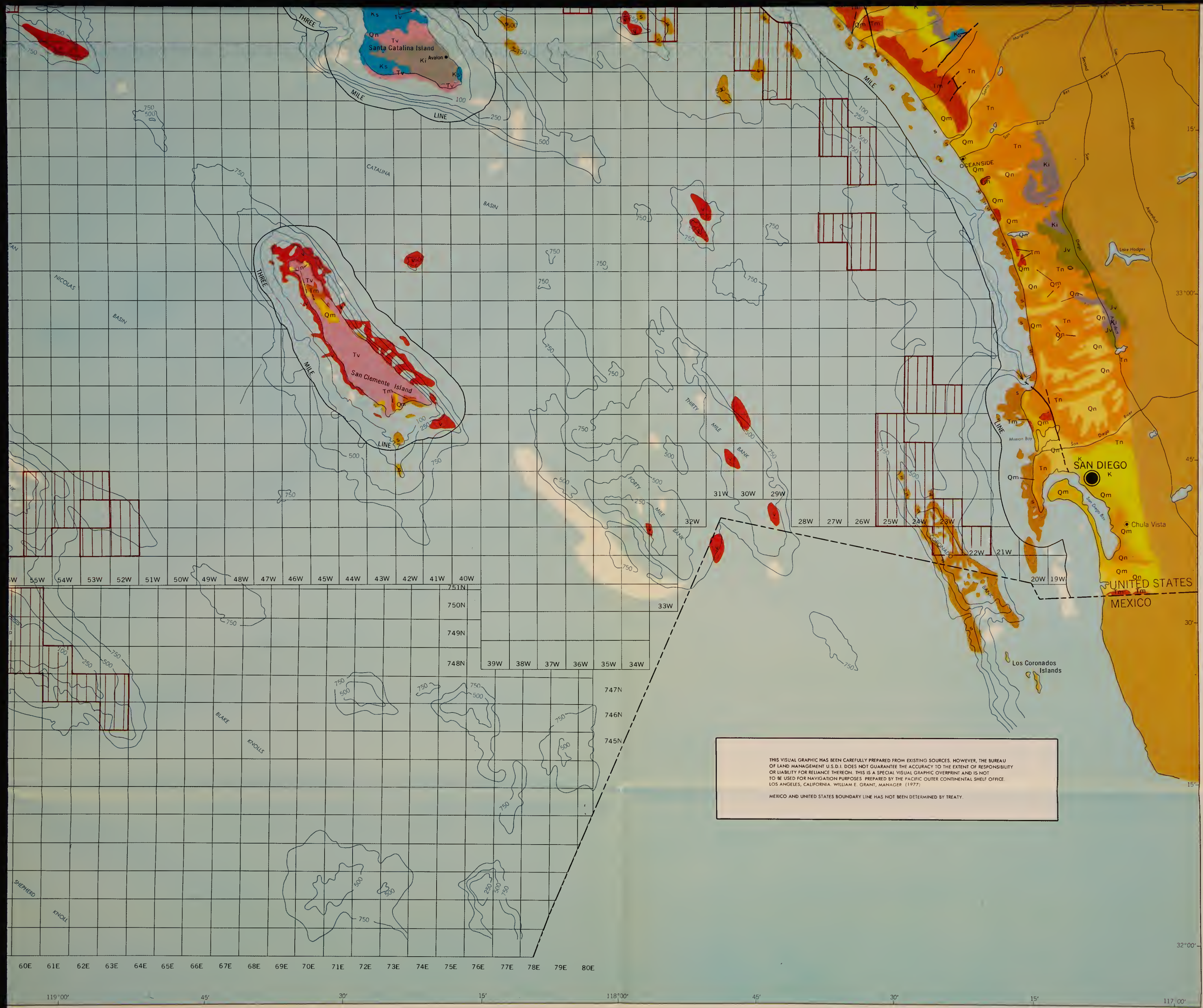

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